Clean Harbors Kansas, LLC
RCRA Permit Application
Section J
Closure Plan

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Acronym Table

Clean Harbors Kansas, LLC (SKW) L
Treatment, Storage, or Disposal Facilities (TSDFs)
Title 40 of the Code of Federal Regulations (40 CFR)
Hazardous Waste Management Units (HWMUs)
National Priorities List (NPL)
Potentially Responsible Party (PRP)
Kansas Department of Health and Environment (KDHE)
Toxic Characteristic Leaching Procedure (TCLP)
Container Management Unit (CMU)
Toxic Characteristic Leaching Procedure (TCLP)

J-1 Introduction

This plan describes the activities to be performed at Clean Harbors Kansas, LLC at the time of facility closure; it addresses both partial unit closures and final facility closure. This plan is contained in the RCRA/HSWA Part B permit application as Section J. When the permit is issued pursuant to this application, this plan will supersede the existing plans covering current interim status operations.

The facility stores, treats, and recovers for recycling hazardous and nonhazardous wastes. LESW blends BTU containing materials for beneficial use and energy recovery as cement kiln fuel and recovers solvents for further management. Clean Harbors Kansas, LLC also stores, processes, and/or manages waste solvents, sludges, solids, and water for subsequent shipment to other permitted Treatment, Storage, or Disposal Facilities (TSDFs) for distillation, beneficial reuse, further treatment or disposal. Clean Harbors Kansas, LLC also stores waste solvent, hydrocarbons, paint-related waste streams, solids, corrosive waste streams, and water-based waste streams. Storage and treatment occurs in both containers and tanks. (For a more complete description of activities at Clean Harbors Kansas, LLC, see Section B, Facility Description.) The facility operates under EPA I.D. No. KSD007246846.

The Clean Harbors Kansas, LLC facility does not include disposal units. Also, all tank systems are equipped with secondary containment meeting the requirements of Title 40 of the Code of Federal Regulations (40 CFR) 264.193 (b) through (f). Therefore, the facility is subject to neither the post-closure care requirements of 40 CFR 264.116 through 264.120, nor the contingent post-closure plan requirements of 40 CFR 264.197(c).

J-2 Hazardous Waste Management Units to be Closed

The Clean Harbors Kansas, LLC facility's existing hazardous waste management units are summarized in Table J.1, Maximum Extent of Operations - Clean Harbors Kansas, LLC - Hazardous Waste Management Units, presented in Appendix J-A, Tables. Specific descriptions of container management units, tank systems, and miscellaneous units are located in Sections D (Container Management), E (Tank Management), and M (Miscellaneous Units), respectively.

J-3 Closure Performance Standard

Clean Harbors Kansas, LLC will close each hazardous waste management unit and/or the entire facility in a manner that minimizes the need for further maintenance, and controls, minimizes, or eliminates (to the extent necessary to protect human health and the environment) post-closure escape of hazardous waste, hazardous constituents, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere.

Clean Harbors Kansas, LLC will meet this performance standard by removing all hazardous wastes and hazardous waste constituents to acceptable levels (see Section J-4a). All containers, tanks, miscellaneous units, piping, and other ancillary parts to the systems will be closed in one of the following ways:

1. They will be dismantled and disposed of as hazardous waste at a RCRA/HSWA permitted off-site disposal facility.

2. They will be decontaminated in accordance with the procedures discussed in Section J-4a and disposed of at a solid waste landfill.

3. They will be decontaminated sufficiently to be salvaged for future use.

4. They will be transferred for use at another RCRA facility.

All permanent structures (e.g., concrete containment systems) will be closed in one of the following ways.

1. They will be dismantled and disposed of as hazardous waste at a RCRA/HSWA permitted off-site disposal facility.

2. They will be decontaminated in accordance with the procedures discussed in Section J-4a and disposed of at a solid waste landfill.

3. They will be decontaminated in accordance with the procedures discussed in Section J-4a and maintained in place for future use.

All analyses performed to verify that closure performance standards are met shall be performed at a laboratory certified by the state of Kansas for the specific analytical procedures used.

J-3a Establishment of Cleanup Standards

Clean Harbors Kansas, LLC will close the subject Hazardous Waste Management Units (HWMUs) by removal of the waste so that there will not be any need for post-closure monitoring and maintenance of the units.

Since all units at Clean Harbors Kansas, LLC have secondary containment, any leaks, spills, drips, etc. will have been contained, removed, and cleaned up in accordance with the operating conditions of this permit. Therefore, the surrounding soils and/or groundwater should not have been contaminated by regulated units during facility operations under this permit application.

The property on which the Clean Harbors Kansas, LLC facility is located is included within the boundaries of the 29th and Mead Comprehensive Environmental Response, Compensation, and Liability Act or "Superfund" Site in Wichita, Kansas. The 29th and Mead Superfund Site is listed on the National Priorities List (NPL). Reid Supply Company has been named a Potentially Responsible Party (PRP) in the 29th and Mead Superfund Site. In 1986, Conservation Services, Inc. purchased certain assets, including the permit (operating under EPA I.D. #KSD007246846), from Reid Supply Co., Inc. Subsequently, Hydrocarbon Recyclers, Inc. of Wichita acquired the capital stock of Conservation Services, Inc. in 1987. The Reid Supply Company property functioned as a storage, recycling, and collection point for hazardous waste material and as a bulk chemical repackaging and distribution center since the 1970s.[1]

The 29th and Mead Superfund Site, located in north Wichita, Kansas, is bounded by 37th Street on the north, I-135 on the east, 17th Street on the south, and Broadway Street on the west. Located in a heavy industrial area, the Site has evolved over a 95 year time span, approximately. Current industry includes, but is not limited to, chemical supply companies, grain elevators, railroad facilities, metal fabricating companies, foundries, refineries, meat processing companies, recyclers/salvage facilities, roofing companies, concrete companies, food processing companies, and gasoline retailers.[1]

Past investigations, including one performed by Groundwater Technology, Inc.[1], have indicated the presence of soil and groundwater contamination. The investigation and remediation plan for the 29th and Mead Superfund Site is in preparation by U.S. EPA Region VII contractors. Due to this investigation into potential contamination of the area, the Clean Harbors Kansas, LLC facility currently does not plan to conduct independent soil or groundwater studies during closure. At final closure, LESW will use the Superfund site cleanup levels as the target levels for closure performance standard for soils and groundwater (as appropriate) at the site. In the event that the Superfund cleanup levels have not been determined at the time of final facility closure, a health risk assessment will be performed and used to set the target closure levels for contaminants in soils and groundwater at the site. The health risk assessment and the recommended target levels will be provided to the appropriate regulatory agency for review and approval prior to implementation. During partial closure, soils will be removed or decontaminated if contaminant levels exceed background levels, as determined using the procedures in Section J-4. Subsequent removal of soils from the same area may occur at final closure, depending upon the target levels defined as discussed in the preceding paragraph.

Clean Harbors Kansas, LLC may amend this closure plan in the future in accordance with 40 CFR 270.42.

Because the scope and extent of future site remediation is unknown, this closure plan will address only potential contamination which resulted from hazardous waste management at Clean Harbors Kansas, LLC Consequently, all areas where evidence of visible contamination exists and areas beneath secondary containment will be evaluated and closed in accordance with J-4a of this closure plan.

During facility operations under this permit application, hazardous waste management areas are covered and have secondary containment which includes diking. These controls minimize precipitation run-on and run-off and will subsequently be maintained during closure. These structures will not be removed until after all associated hazardous waste management units are decontaminated; or, if demolition is required, other practical methods will be implemented to control run-on and run-off.

Because the Clean Harbors Kansas, LLC facility does not contain waste piles or surface impoundments, and the facility is not a disposal facility, other activities such as groundwater monitoring and leachate collection are not applicable as part of closure.

J-4 Partial Closure and Final Closure Activities

Partial facility closure (i.e., closure of individual hazardous waste management units) may be necessary during the active life of the facility. If partial closure is necessary, the individual hazardous waste management unit would be closed in accordance with Section J-9 of this closure plan. Currently, however, LESW plans to close all existing hazardous waste management units during the final facility closure. Clean Harbors Kansas, LLC will close the facility in accordance with the following procedures.

1. Clean Harbors Kansas, LLC will notify the Kansas Department of Health and Environment (KDHE) or the United States Environmental Protection Agency (USEPA), Region 7, Administrator at least 45 days before Clean Harbors Kansas, LLC intends to begin final closure (within 30 days after receiving the known final volume of hazardous waste into a hazardous waste management unit).

2. If modifications to this closure plan are desired and have not been previously approved in accordance with 40 CFR 270.42 and 264.112, the modified portions of the plan will not be implemented until approval by KDHE or other

authorized agencies has been received.

3. Within 90 days after receiving the final volume of hazardous wastes at a hazardous waste management unit or the facility, LESW will either treat or remove from the unit or facility all hazardous wastes in accordance with this closure plan, unless an extension has been requested and approved in accordance with 40 CFR 264.113(a).

4. Clean Harbors Kansas, LLC will complete final closure activities within 180 days after receiving either the final volume of hazardous wastes or final closure plan approval from the agency (whichever is later), unless an extension has been requested and approved in accordance with 40 CFR 264.113(b).

5. Clean Harbors Kansas, LLC will close the facility in accordance with the schedule discussed in Section J-7 and outlined in Table J.3, Closure Activity Schedule - Final Facility Closure, of this closure plan.

6. The container management units will be closed in accordance with Section J-9a of this closure plan. The tank systems will be closed in accordance with Section J-9b of this plan. All miscellaneous units will be closed in accordance with Section J-9c of this plan.

7. All contaminated equipment and structures will be either properly disposed of as hazardous waste or decontaminated in accordance with Section J-4a of this closure plan. After decontamination, equipment (such as hand tools, forklifts, and conveyers) and structures may be salvaged for future use.

8. Clean Harbors Kansas, LLC will visually inspect the surface soils at the facility. In accordance with Section J-4a of this closure plan, any visible evidence of contamination will be evaluated for hazardous constituents and (if contamination is present) subsequently removed for proper disposal. The target levels for soil contaminants at partial closure will be determined by comparison to local background levels. For final closure, target levels for closure will be determined by comparison to Superfund cleanup levels or, if necessary, levels set using a site-specific health risk assessment.

9. All wastes generated from closure activities will be handled in accordance with Section J-4b of this closure plan.

10. The Clean Harbors Kansas, LLC facility does not contain disposal units. All tank systems have secondary containment meeting the requirements of 40 CFR 264.193 (b) through (f).

Also, all hazardous

wastes and hazardous waste constituents will be removed from the facility during final closure and all structures will be decontaminated in accordance with this closure plan. Therefore, the facility is subject to neither the post-closure care requirements of 40 CFR 264.116 through 264.120, nor the contingent post-closure plan requirements of 40 CFR 264.197(c).

11. Within 60 days of final closure completion, Clean Harbors Kansas, LLC will submit, either by hand delivery or by registered mail, a certification of closure to KDHE or to the Regional Administrator of the USEPA, Region 7. The certification will be signed by LESW, as the owner/operator of the facility, and by an independent registered professional engineer attesting that the units were closed in accordance with this closure plan.

J-4a <u>Disposal or Decontamination of Equipment, Structures and Soils</u>

During the partial and final closure periods, all contaminated equipment and structures will be either properly disposed of or decontaminated.

J-4a(1) Soils

As discussed in Section J-3a, Clean Harbors Kansas, LLC does not currently plan to perform extensive soil or groundwater studies for the purpose of closure because this would duplicate the pending Superfund investigation into potential historical contamination of the site and the surrounding area. The extent of remedial action which will be required at the 29th and Mead Superfund Site has not been determined.

During closure operations, Clean Harbors Kansas, LLC will inspect the immediate area around all hazardous waste management units for indications of contamination. Any visible evidence of contamination (e.g., staining, discoloration) will be evaluated for hazardous constituents (performing limited soil sampling and analysis if applicable) and, if contamination is present, the soils will be removed for proper disposal. In addition, the concrete base of the containment system will be inspected for evidence of damage (e.g., cracking, pitting, etc.). If this damage may have resulted in migration of hazardous constituents from the containment system, further investigations will be performed to

determine the presence and extent of contamination, if any.

Visibly contaminated soil, either adjacent to or under containment systems of waste management units, will be removed. Excavated soil and debris will be analyzed according to standard laboratory procedures for the presence of hazardous constituents and managed in accordance with applicable regulations. Procedures for sampling and analysis of soil remaining after excavation (if applicable) are listed below.

1. For partial closure involving possible soil contamination, six representative background samples will be taken on-site but away from the visible contamination at depths of 0-18 inches and 18-36 inches at each of three sample points and analyzed using either USEPA SW-846 8260 and/or SW-846 8015, modified, or another equivalent, acceptable method. For all methods of record, deviations from SW-846 methods have either been included in the Waste Analysis Plan (Section C) for agency approval at this time, or will be submitted to the agency for approval prior to use. Background samples will be taken from the same soil type and at the same soil horizon as non-background samples. The facility "background" will be considered the mean plus two standard deviations.

2. All soil analysis procedures will be conducted in accordance with either USEPA method SW-846 numbers 6010, 7471, and/or 8260, modified (as appropriate) or other equivalent procedures. For all methods of record, deviations from SW-846 methods have either been included in the Waste Analysis Plan (Section C) for agency approval at this time, or will be submitted to the agency for approval prior to use.

3. Proper QA/QC procedures will be followed to control the potential loss of VOCs during sampling and transport.

4. All visibly contaminated soil will be removed.

5. All visibly contaminated soil which has been removed will be handled in accordance with Section J-4b of this closure plan.

6. After removal of the contaminated soil, three samples will be taken from inside the area of removed soil at depths of 0-6 inches, 12-18 inches, and 24-30 inches. The samples will be analyzed using USEPA SW-846 8260 and SW-846 8015, modified, and in accordance with Step 2 above.

7. For partial closures, soil will be considered clean for closure when results of sample analyses are either at or below on-site background levels as determined under Item 1 of this list. For final closure, soil will be considered clean for closure when results of sample analyses are at or below health risk based

levels determined in conjunction with the Superfund process, or alternate standards determined using a health risk assessment and approved by KDHE.

8. If the soil does not meet the conditions specified in Step 7 above, soil will be removed to six inches below the lowest contaminated sample detected. If the 24-30 inch soil horizon shows contamination as defined in Step 7, Steps 6 through 8 will be repeated.

During final closure operations, the soil beneath containment systems of all hazardous waste management units will be closed as follows.

1. A visual inspection for evidence of release (i.e., staining or discoloration of soil, or damage to containment system) will be performed to determine selected sites for soil or concrete sampling. At the time of closure, if cracks or gaps which may have resulted in contaminant migration are observed in the hazardous waste management unit, a

sample site will be located on or near the crack location. Concrete corings will not be taken in any unit for which the facility can document that there has not been a major release during the operating period. Concrete corings will be taken in Building I, and in units in which major releases have been documented during the operating period.

2. Collect samples at three depths, 0-6 inches, 12-18 inches, and 24-30 inches, at each sample point and analyze using either USEPA SW-846 8260 and/or SW-846 8015, modified, or another

acceptable method. The samples from each horizon will be composited. For all methods of record, deviations from SW-846 methods have either been included in the Waste Analysis Plan (Section C) for agency approval at this time, or will be submitted to the agency for their approval prior to use.

3. Collect background samples in accordance with Item 1 on page 14 of this Closure Plan, unless background levels have already been determined for the site.

4. Proper QA/QC procedures will be followed to control the potential loss of VOCs during sampling and transport.

5. Soil analysis procedures will be according to either USEPA method SW-846 numbers 6010, 7471 and/or 8260, modified (as appropriate) or other acceptable method. For all methods of record, deviations from SW-846 methods have either been included in the Waste Analysis Plan (Section C) for agency approval at this time, or will be submitted to the agency for their approval prior to use.

6. For partial closures, soil will be considered clean for closure when results of sample analysis are at or below on-site background levels as determined under Item 1 on page 13. For final closure, soil will be considered clean for closure when results of sample analyses are at or below health risk based levels determined in conjunction with the Superfund process, or alternate standards determined using a health risk assessment and approved by KDHE.

7. If large areas of soil contamination, in excess of closure standards, are identified, a project specific assessment and cleanup plan will be prepared and submitted to the KDHE for approval and subsequent implementation. This will be done in accordance with the permit modification procedures of 40 CFR 270.42.

J-4a(2) Hazardous Waste Management Units (HWMUs)

Decontamination procedures for hazardous waste management units (i.e., tank systems, container storage units, and miscellaneous units) are discussed in the following paragraphs. Specific procedures are outlined based on configuration of the equipment. "Exposed surfaces" are external surfaces and those internal surfaces which are readily scraped, sandblasted, brushed, or swept (i.e., accessible to standard techniques for removal of residual materials).

J-4a(2)(a) HWMUs with no internal or complicated external parts

All tank systems, container management units, and miscellaneous units and their associated secondary containment system components and ancillary equipment will be decontaminated as follows (unless the unit has internal and/or complicated external parts exposed to waste).

1. Surfaces will be scraped, sandblasted, brushed, or swept to remove all loose or caked residue. Surfaces will then be triple rinsed. The first wash/rinse will be performed with a high-pressure stream of steam or water with suitable detergents or other cleaning additives. The second

wash/rinse will be performed using clean water with cleaning additives. Accumulated liquids from the two first washes will be collected and handled in accordance with Section J-4b of this closure plan. The third wash/rinse will be performed with clean (potable) water.

2. The equipment will be visually inspected after the triple wash/rinse to assess the presence of visible residue. If necessary, the facility will repeat all, or part, of the above procedures.

3. A representative sample will be taken of the rinse water from the final rinse of each hazardous waste management unit. These samples will be analyzed for total concentrations of all constituents with Maximum Concentration Limits (MCL) defined in 40 CFR 264.94.

4. A unit will be considered decontaminated when the rinsate sample analysis results are lower than the MCLs defined in 40 CFR 264.94, and when no visible residues remain on the unit.

5. If the unit is not decontaminated after performing Steps 1 through 4, the facility will either repeat the above procedures or dismantle the unit for further management and/or disposal at an off-site permitted TSDF as a hazardous waste. Equipment disposed of in a landfill will meet the applicable Land Disposal Restriction (LDR) standards of 40 CFR 268.

J-4a(2)(b) HWMUs with internal or complicated external parts

Any tank systems or miscellaneous units with external or complicated internal parts exposed to wastes (such as the Shredding Unit) will be decontaminated as follows.

1. Exposed surfaces will be scraped, sandblasted, brushed, or swept to remove all loose or caked residue. Surfaces will then be triple rinsed. The first wash/rinse will be performed with a high-pressure stream of steam or water with suitable detergents or other cleaning additives. The second wash/rinse will be performed using clean water with cleaning additives. Accumulated solids and liquids from the two first washes will be handled in accordance with section J.4b of this closure plan. The third wash/rinse will be performed with clean water.

2. The equipment will be visually inspected after the triple wash/rinse to assess the presence of visual residue. If necessary the facility will repeat all, or part, of the above procedures.

3. If visible contamination remains, go to Step 5 below. If no visible contamination remains, the facility will take a representative sample of the rinse water from the final rinse of the hazardous waste management unit. These samples will be analyzed according to the TCLP (40 CFR 261.24 as amended June 29, 1990).

4. A unit will be considered decontaminated when the rinsate sample analysis results are lower than the values/levels listed in Table J.2, and when no visible residues remain on the unit.

5. If, after performing the above rinsing procedures, the equipment can not be decontaminated, the equipment will be transported by a licensed/permitted hauler to an off-site, permitted TSDF for further treatment or disposal. Equipment disposed of in a landfill will meet the applicable Land Disposal Restriction (LDR) standards of 40 CFR 268.

J-4a(3) Closure of Miscellaneous Handling Equipment

A wide variety of equipment on site may be used for hazardous waste management. Equipment which has been in contact with hazardous waste will be decontaminated during closure activities. Equipment which may require decontamination during closure includes (but is not limited to) industrial trucks, drum dollies, handcarts, conveyers, augers, and other material transfer equipment, as well as hand tools such as shovels, brushes, scrapers, etc. During final facility closure, this equipment will be closed in one of the following ways:

- For closure of small equipment (such as hand tools), if visible contamination exists, the equipment will be dismantled and disposed of as hazardous waste at a RCRA/HSWA permitted off-site disposal facility,

- For closure of all equipment (including hand tools), if visible contamination exists, equipment will be decontaminated and disposed of at a solid waste landfill. If evidence of contamination exists after decontamination, the equipment will be transported by a permitted/licensed hauler to a permitted RCRA/HSWA off-site TSDF for further treatment or disposal, or

- For closure of all equipment (including hand tools), if visible contamination exists, equipment will be decontaminated sufficiently to be salvaged for future use and potentially transferred for use at another RCRA facility.

J-4a(3)(a) Decontamination of small miscellaneous handling equipment

All hand tools and equipment without internal or complicated external parts will be decontaminated in accordance with the following procedures.

1. Surfaces will be scraped, sandblasted, brushed, or swept to remove all loose or caked residue. Surfaces will then be rinsed with a high-pressure stream of steam or water, possibly with suitable detergents or other cleaning additives, until either all visible contamination is removed, or until further removal is not feasible. All accumulated solids and liquids will be handled in accordance with section J-4b of this closure plan.

2. The equipment will be visually inspected for evidence of visible contamination.

3. The equipment will be considered decontaminated when no visible evidence of contamination exists.

4. If visible evidence of contamination remains and cannot be removed, the equipment will be disposed of as a hazardous waste.

J-4a(3)(b) **Decontamination of large miscellaneous handling equipment with no internal or complicated external parts**

All large equipment with no internal or complicated external parts will be decontaminated as follows.

1. Surfaces will be scraped, sandblasted, brushed, or swept to remove all loose or caked residue. Surfaces will then be triple rinsed. The first wash/rinse will be performed with a high-pressure stream of steam or water with suitable detergents or other cleaning additives. The second wash/rinse will be performed using clean water with cleaning additives. Accumulated solids and liquids from the two first washes will be handled in accordance with section J.4b of this closure plan. The third wash/rinse will be performed with clean water.

2. The equipment will be visually inspected after the triple wash/rinse to assess the presence of visual residue. If necessary, the facility will repeat all, or part, of the above procedures.

3. A representative sample will be taken of the rinse water from the final rinse of each hazardous waste management unit. These samples will be analyzed for total concentrations of MCL constituents.

4. Except in cases where the Hazardous Waste Debris Rule applies, the equipment will be considered decontaminated when the rinsate sample analysis results are lower than the MCLs defined in 40 CFR 264.94, and when no visible residues remain on the unit.

5. If the unit is not decontaminated after performing Steps 1 through 4, the facility will either repeat the above procedures or dismantle the unit and transport it by a licensed/permitted hauler to an off-site, permitted TSDF for further treatment or disposal.

J-4a(3)(c) **Decontamination of large miscellaneous handling equipment with internal or complicated external parts**

All large equipment with internal and/or complicated external parts that contact waste will be decontaminated in accordance with the following procedures.

1. Surfaces will be scraped, sandblasted, brushed, or swept to remove all loose or caked residue. Surfaces will then be triple rinsed. The first wash/rinse will be performed with a high-pressure stream of steam or water with suitable detergents or other cleaning additives. The second wash/rinse will be performed using clean water with cleaning additives. Accumulated solids and liquids from the two first washes will be handled in accordance with section J.4b of this closure plan. The third wash/rinse will be performed with clean water.

2. The equipment will be visually inspected after the triple wash/rinse to assess the presence of visual residue. If necessary the facility will repeat all, or part, of the above procedures.

3. If visible contamination remains, go to Step 5 below. If no visible contamination remains, the facility will take a representative sample of the rinse water from the final rinse of the hazardous waste management unit. These samples will be analyzed for total concentrations of MCL constituents.

4. A unit will be considered decontaminated when the rinsate sample analysis results are lower than the MCLs defined in 40 CFR 264.94, and when no visible residues remain on the unit.

5. If after performing the above rinsing procedures, the equipment can not be decontaminated, the equipment will be transported by a licensed/permitted hauler to an off-site, permitted TSDF for further treatment or disposal. Equipment disposed of in a landfill will meet the applicable Land Disposal Restriction (LDR) standards of 40 CFR 268.

J-4b <u>Hazardous Waste Handling Procedures</u>

All contaminated solids, liquids, sludges, soils, and debris generated by the closure process will be managed in accordance with applicable regulations as site generated solid waste (i.e., Clean Harbors Kansas, LLC is the generator). Generated wastes meeting the definition of "hazardous waste" under 40 CFR 261.3 will be handled in the manner discussed below.

Site-generated hazardous wastes may be stored on-site in containers, existing tanks, or temporary portable tanks prior to treatment or removal from the facility. The wastes may be treated on-site in accordance with the facility's RCRA/HSWA permit. A temporary storage area may be developed for storage of these generated wastes, and if so, wastes will be stored in this area for less than ninety days. These wastes will then be transported to a permitted off-site Treatment, Storage, or Disposal Facility (TSDF) by a permitted hazardous waste hauler for appropriate disposal or further treatment (e.g. landfill, deep-well injection, incineration, cement kiln, recycling facility).

J-5 Maximum Extent of Operations

Table J.1 lists all existing and proposed hazardous waste management units at the Clean Harbors Kansas, LLC facility. This table represents the maximum extent of operations which are currently planned to exist at this facility.

J-6 Maximum Waste Inventory

The maximum inventory of wastes in storage exists when all hazardous waste management units contain their maximum permitted capacity of waste. The facility's potential maximum waste inventory is 463,477 gallons.[a]

[a] The maximum waste inventory was calculated by adding S01 (storage in containers) and S02 (storage in tanks) in the Part A permit application.

325,490 gallons (S01) + 137,987 gallons (S02) = 463,477 gallons

J-7 Schedule for Final Closure

Table J.3, Closure Activity Schedule - Final Facility Closure outlines the anticipated schedule for closing the Clean Harbors Kansas, LLC facility. The schedule assumes that all hazardous waste management units identified in this plan (See Table J.1) will be closed.

During final closure, hazardous waste management units may be closed simultaneously or sequentially. Also, a temporary storage area may be developed for storage of wastes which are generated on-site during closure activities, and if so, wastes will be stored in this area for less than ninety days in appropriate containers or temporary tanks.

J-7a Expected Year of Final Closure

Clean Harbors Kansas, LLC does not expect to close the facility prior to the permit expiration (i.e., ten years after the effective date of the permit). Since the facility does not consist of disposal units such as landfills or surface impoundments, capacity restraints (such as landfill capacity) do not exist to force facility closure. Therefore, Clean Harbors Kansas, LLC will not estimate the year of final closure [per 40 CFR 264.112(b)(7)].

J-8 Closure Plan Amendment

Clean Harbors Kansas, LLC maintains a copy of the closure plan at the facility. Clean Harbors Kansas, LLC will submit a written request for approval to change the closure plan, in accordance with 40 CFR 264.112(c) and 40 CFR 270.42, whenever one of the following occurs.

1. Changes in operating plans or facility design affect the closure plan.

2. Change in the estimated year of final closure (see section J-7a).

3. In conducting partial or final closure activities, unexpected events occur which affect the closure plan.

This notification will include a copy of the amended closure plan for review or approval by KDHE. It will be submitted at least 60 days prior to the proposed change in facility design or operation, or no later than sixty days after an unexpected event has occurred which has affected the closure plan. If an unexpected event occurs during the partial or final closure period, Clean Harbors Kansas, LLC will submit the notification or request no later than 30 days after the unexpected event's occurrence.

J-9 Individual Unit Closures

This section details the closure procedures of each individual hazardous waste management unit. During final facility closure and partial facility closure, each hazardous waste management unit will be closed in accordance with this section.

J-9a Container Management Unit (CMU) Closure

Partial facility closure (closure of an individual hazardous waste management unit), may be necessary during the active life of the facility. If a container management unit must be closed during the active life of the facility, it will be closed in accordance with this section (J-9a). At final closure of a container management unit, all hazardous waste and hazardous waste residues will be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be either decontaminated or removed.

J-9a(1) Process and Unit Description

The container management units at the Clean Harbors Kansas, LLC facility are used for storing and staging containers of hazardous and non-hazardous wastes. The container management units may also be used for the treatment of hazardous waste in containers. The wastes managed in these areas include liquids, sludges, and solids and are managed in containers of varying sizes. The LESW facility manages containerized waste in seven container management buildings, each roofed and constructed with concrete diking to minimize run-on and run-off. These buildings are divided into independently contained sub-areas called Container Management Unit (CMU)s. The maximum total permitted storage capacity of container management units on site is approximately 325,490 gallons. Figure J.1, Material Containment Areas (Drawing 50-01-10-002, Material Containment Areas presented in Section Y) depicts the location of each CMU at the facility; Section D of this permit application describes each CMU in more detail.

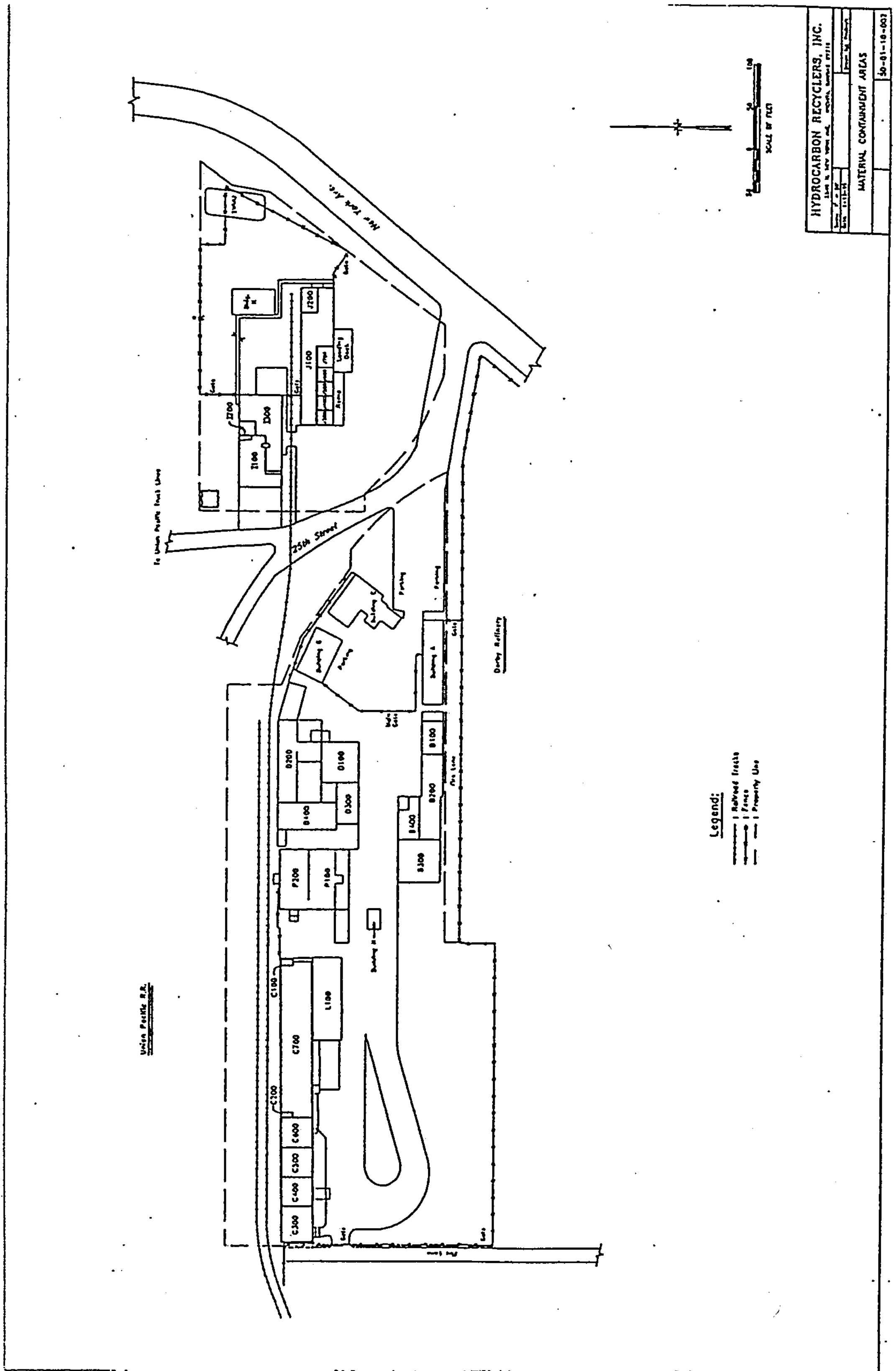

Figure J.1. Material Containment Areas

J-9a(2) Unit Closure Procedures

For the purposes of this closure plan, each container management unit includes the following structures/equipment:

- Containers, drums, pallets, marino bags, etc., and associated hazardous wastes, waste residues and constituents.

- All associated secondary containment structures (concrete pads, curbs, ramps, etc.).

- Associated equipment (e.g., conveyors, etc.).

Buildings which enclose CMUs and which do not come into direct contact with hazardous waste or hazardous waste containers are not part of the container management unit. Therefore, the buildings associated with CMUs, including floors which are not part of the container management unit, will not be subject to the decontamination procedures of this closure plan and may be left in place. However, these walls and floors will be visually inspected and, if evidence of contamination exists, these structures will be cleaned.

Clean Harbors Kansas, LLC will close all CMUs at the facility as follows.

1. If modifications to the closure plan are desired and have not been previously approved in accordance with 40 CFR 270.42 and 264.112, the modified portions of the plan will not be implemented until approval by KDHE or other authorized agencies has been received.

2. Clean Harbors Kansas, LLC will close the CMU(s) in accordance with the schedule outlined in Table J.4, Closure Activity Schedule - Container Management Unit (CMU) and discussed in Section J-9a(3) of this closure plan.

3. Within ninety days after receiving the final volume of hazardous wastes at the CMU(s), Clean Harbors Kansas, LLC will remove all waste inventory and portable equipment from the area unless an extension has been requested and approved in accordance with 40 CFR 264.113(a). All waste inventories will be either treated on-site in accordance with the facility's RCRA/HSWA permit or transported to a permitted TSDF for off-site management.

Clean Harbors Kansas, LLC will attempt to empty all drums to the extent described by 40 CFR 261.7(b) to satisfy the requirements for the exemption as defined by 40 CFR 261.7(a)(1). The successfully emptied drums will be transported to an off-site industrial waste disposal facility or a permitted RCRA/HSWA TSDF for disposal. If a container cannot be emptied to meet the definition in 40 CFR 261.7(b), then the container will be transported by a licensed hazardous waste hauler to a permitted off-site RCRA/HSWA TSDF for management.

4. All contaminated equipment, structures, and secondary containment systems will be:

   A. Dismantled and disposed of as hazardous waste at a RCRA/HSWA permitted off-site disposal facility, or

   B. Decontaminated in accordance with Section J-4a and disposed of at a solid waste landfill, or

   C. Decontaminated in accordance with Section J-4a and either salvaged for future use or left in place.

D. Successfully decontaminated equipment may be transferred to another TSDF for use.

5. Clean Harbors Kansas, LLC will visually inspect the surface soils around the CMU(s). Any visible evidence of contamination will be evaluated for hazardous constituents and (if contamination is present) subsequently removed for proper management in accordance with Section J-4a of this closure plan.

   At final closure, the soil beneath the secondary containment systems will be closed in accordance with Section J-4a of this closure plan.

6. All wastes generated on-site from closure activities will be handled in accordance with Section J-4b of this closure plan.

7. Clean Harbors Kansas, LLC will complete closure activities within 180 days after receiving either the final volume of hazardous wastes or closure plan approval by the agency, unless an extension has been requested and approved in accordance with 40 CFR 264.113(b).

8. The CMUs are not disposal units. Also, all hazardous wastes and hazardous waste constituents will be removed from the CMU during closure and all structures will be decontaminated in accordance with this closure plan. Therefore, the CMUs are not subject to the post-closure care requirements of 40 CFR 264.116 through 264.120.

J-9a(3) Unit Closure Schedule

Table J.4 outlines the anticipated schedule for the individual closure of a container management unit at the Clean Harbors Kansas, LLC facility. During final closure of the facility, all HWMUs may be closed simultaneously and in accordance with the schedule presented in Table J.3.

J-9b Tank System Closure

Partial facility closure (closure of an individual hazardous waste management unit) may be necessary during the active life of the facility. If a tank or tank system must be closed during the active life of the facility, it will be closed in accordance with this section (J-9b). At closure of a tank or tank system, all hazardous waste and hazardous waste residues will be removed from the tank/tank system. Tanks, ancillary equipment, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be either decontaminated or removed.

J-9b(1) Process and Unit Description

Tank systems at the Clean Harbors Kansas, LLC facility include storage/treatment tanks; the maximum permitted storage capacity of tanks on site is 137,987 gallons. The storage/treatment tanks have several uses at the Clean Harbors Kansas, LLC facility, some of which are discussed below.

- Solvent and solid waste streams are blended, accumulated, and stored in tanks prior to being transported to an off-site cement kiln to be burned as an alternative fuel.

- Other wastes are received from generators either in drums or bulk and are transferred to tanks to await transportation to an off-site reclamation facility, incinerator, deep-well injection facility, landfill or other permitted TSDF.

- Finally, the Clean Harbors Kansas, LLC facility manages solvent laden cartridges (e.g., dry cleaning cartridges). Cartridges are shredded and/or dried to recover solvent or other material for energy recovery and/or reuse, or they may be sent to an off-site TSDF without on-site processing. Recovered vapors are condensed and accumulated in a vessel which is purged after each drier batch. The solvent and water are separated in a phase separation tank, and then stored separately in designated tanks prior to shipment off-site to a TSDF for further reclamation, for disposal, or for other appropriate management.

The tanks used at Clean Harbors Kansas, LLC vary in size. All tanks utilized for hazardous waste management are equipped with a manual gaging port and high level alarms to minimize the potential for overflow. All hazardous waste management tanks operating under this permit have secondary containment designed, installed, and operated to prevent migration of wastes or accumulated liquid to the environment. These containment systems, consisting of concrete slabs surrounded by concrete walls or dikes of varying height, enable the detection of and collection of releases and accumulated liquids. The concrete containment liner is also maintained free from cracks and gaps.

These tanks are summarized in Table J.1. In addition, Figure J.2, Tank Locations (Drawing 50-01-03-001, Tank Locations presented in Section Y) shows the location of each tank system at the facility. Section E of this permit application describes the tank systems in more detail. The tank systems are designed, constructed, and operated in accordance with 40 CFR 264.190 through 199.

J-9b(2) <u>Unit Closure Procedures</u>

For the purposes of this closure plan, each tank system includes:

- Tanks and associated hazardous wastes, waste residues and constituents;

- All ancillary equipment including, but not limited to, piping, fittings, flanges, valves, and pumps; and

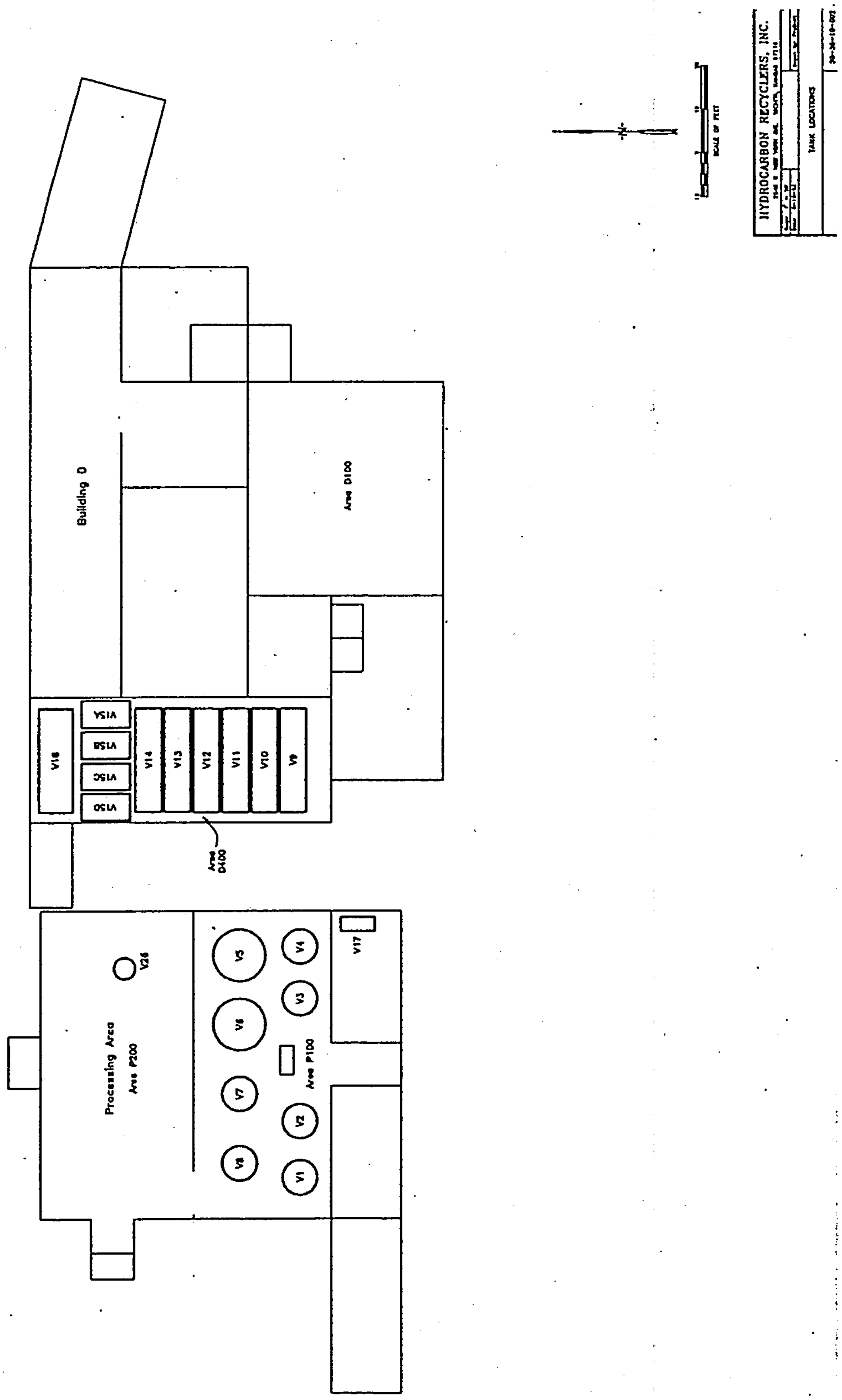

Figure J.2. Tank Locations

- All associated secondary containment structures (concrete pads, curbs, ramps, etc.).

The buildings which contain tank systems and which do not come into direct contact with hazardous waste or hazardous waste tank systems are not part of the tank system. Therefore, these buildings associated with the tank systems, including floors which are not part of the tank system, will not be subject to the decontamination procedures of this closure plan and may be left in place. However, these walls and floors will be visually inspected and, if evidence of contamination exists, these structures will be cleaned.

The tank units at the Wichita facility may undergo periodic changes and upgrading in order to accommodate required regulatory and capacity changes and improvements in technology. Also, LESW will replace tanks if they become unfit for use. Since each secondary containment system contains several tanks, the Clean Harbors Kansas, LLC facility could potentially close a single tank unit without closing the associated secondary containment system. However, upon final facility closure all tank systems, including secondary containment, will be closed in accordance with this section.

Clean Harbors Kansas, LLC will close all tanks and/or tank systems at the facility as follows.

1. If modifications to the closure plan are desired and have not been previously approved in accordance with 40 CFR 270.42 and 264.112, the modified portions of the plan will not be implemented until approval by KDHE or other authorized agencies has been received.

2. Clean Harbors Kansas, LLC will close the tanks and/or tank systems in accordance with the schedule outlined in Table J.5, Closure Activity Schedule - Tanks and Tank Systems and as discussed in Section J-9b(3) of this closure plan.

3. Within ninety days after receiving the final volume of hazardous wastes into the tank/tank system, Clean Harbors Kansas, LLC will remove all waste inventory from the unit(s) unless an extension has been requested and approved in accordance with 40 CFR 264.113(a). All waste inventories will be either treated on-site in accordance with the facility's RCRA/HSWA permit

or transported to a permitted TSDF for off-site management.

4. All tanks, ancillary equipment, structures, and secondary containment systems (when applicable) will be:

   A. Dismantled and disposed of as hazardous waste at a RCRA/HSWA permitted off-site disposal facility, or

   B. Decontaminated in accordance with Section J-4a and disposed of at a solid waste landfill, or

   C. Decontaminated in accordance with Section J-4a and either salvaged for future use or left in place.

   D. Successfully decontaminated equipment may be transferred to another TSDF for use.

5. This step applies only when closing an entire tank system, including its secondary containment. If only closing a tank unit, go to Step 6 below. When closing a tank system, LESW will visually inspect the surface soils around the tank system containment area. In accordance with Section J-4a of

this closure plan, any visible evidence of contamination will be evaluated for hazardous constituents and, if contamination is present, subsequently removed for proper disposal or other appropriate off-site management.

At final closure, the soil beneath the secondary containment systems will be closed in accordance with Section J-4a of this closure plan.

6. All wastes generated on-site from closure activities will be handled in accordance with Section J-4b of this closure plan.

7. Clean Harbors Kansas, LLC will complete closure activities within 180 days after receiving either the final volume of hazardous wastes into the tank unit(s) or closure plan approval from the agency, whichever is later, unless an extension has been requested and approved in accordance with 40 CFR 264.113(b)..

8. The tank systems are not disposal units, and they have secondary containment meeting the requirements of 40 CFR 264.193(b) through (f). Also, all hazardous wastes and hazardous waste constituents will be removed from the

tanks/tank systems during closure and all structures will be decontaminated in accordance with this closure plan. Therefore, the tank/tank systems are subject to neither the post-closure care requirements of 40 CFR 264.116 through 264.120, nor the contingent post-closure plan requirements of 40 CFR 264.197(c).

J-9b(3) Unit Closure Schedule

Table J.5 outlines the anticipated schedule for the individual closure of a tank/tank system at the Clean Harbors Kansas, LLC facility. During final closure of the facility, all HWMUs may be closed either sequentially or simultaneously and in accordance with the schedule presented in Table J.3.

J-9c Miscellaneous Unit Closure

Partial facility closure, closure of an individual hazardous waste management unit, may be necessary during the active life of the facility. If a miscellaneous unit must be closed during the active life of the facility, it will be closed in accordance with this section. At closure of a miscellaneous unit, all hazardous waste and, to the extent possible, hazardous waste residues will be removed from the unit. Furthermore, the miscellaneous unit, associated ancillary equipment, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be either decontaminated or removed.

J-9c(1) Process and Unit Description

"Miscellaneous Unit" is defined under 40 CFR 260.10 (as of July 1, 1990) as:

> A hazardous waste management unit where hazardous waste is treated, stored, or disposed of, and that is not a container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under 40 CFR Part 146, or unit eligible for a research, development, and demonstration permit under 40 CFR 270.65.

The Clean Harbors Kansas, LLC facility has miscellaneous units as defined above. Table J.1 and Figure J.3, Miscellaneous Unit Locations (Drawing 50-57-10-001, Miscellaneous Unit Locations presented in Section Y) identify these units and their location at the Wichita facility. A brief description of each unit follows.

1. Shredder Unit - A toothed wheel shredder which reduces bulk objects into shreds.

2. Granulator Unit - A fixed knife shredder which reduces the size of solid objects.

3. Dispersing Unit - A unit which uses agitation to dissolve viscous liquids and solids removed from containers prior to transferring these materials into tanks or containers.

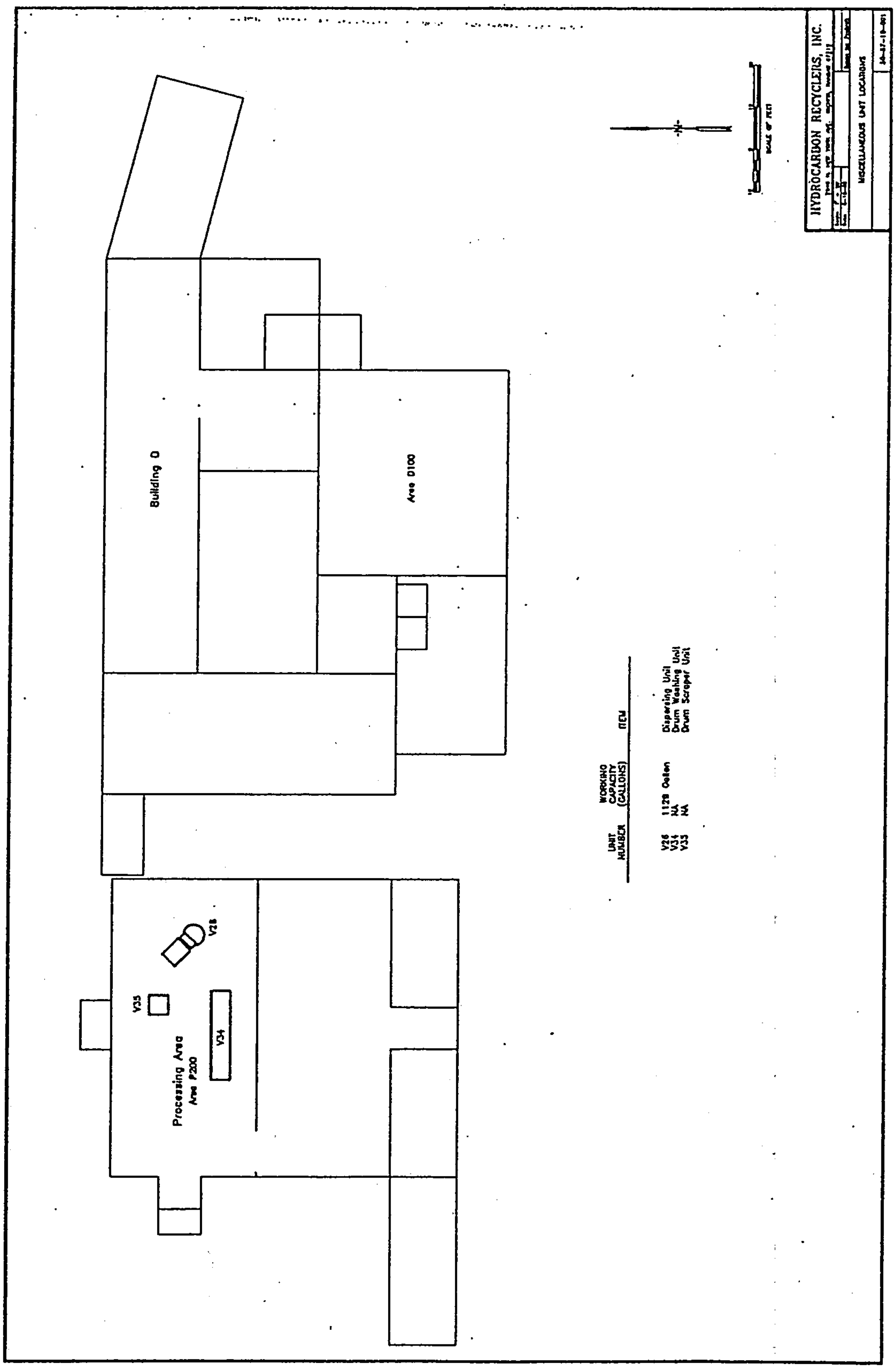

Figure J.3. Miscellaneous Unit Locations

4. Drum Washing Unit - A unit which mechanically removes waste residue from emptied drums.

5. Drum Scraper Unit - A device which loosens solid and viscous material inside a container so the material may be removed from the container for further management (e.g., treatment, storage).

J-9c(2) Unit Closure Procedures

For the purposes of this closure plan, each miscellaneous unit includes the following structures/equipment:

- The unit and associated hazardous wastes, waste residues and constituents;
- Ancillary equipment including, but not limited to, piping, fittings, flanges, valves, and pumps; and
- Associated secondary containment structures (concrete pads, curbs, ramps, etc.).

The buildings which contain miscellaneous units and which do not come into direct contact with hazardous waste or the unit are not part of the miscellaneous unit. Therefore, the buildings associated with the miscellaneous unit, including floors which are not part of the miscellaneous unit system, will not be subject to the decontamination procedures of this closure plan and may be left in place. However, these walls and floors will be visually inspected and, if evidence of contamination exists, these structures will be cleaned.

The miscellaneous units at the Clean Harbors Kansas, LLC facility may undergo periodic changes, upgrades, or partial closure in order to accommodate required regulatory and capacity changes and improvements in technology. Also, Clean Harbors Kansas, LLC will periodically replace miscellaneous units if they become unfit for use and repair. Since some of the secondary containment systems contain miscellaneous units in addition to tanks and/or CMUs, the facility could potentially close or replace a single miscellaneous unit without closing the associated secondary containment system. However, upon final facility closure all miscellaneous units, including secondary containment, will be closed in accordance with this section.

Clean Harbors Kansas, LLC will close all miscellaneous units at the Wichita facility as follows.

1. If modifications to the closure plan are desired and have not been previously approved in accordance with 40 CFR 270.42 and 264.112, the modified portions of the plan will not be implemented until approval by KDHE or other authorized agencies has been received.

2. Clean Harbors Kansas, LLC will close the miscellaneous unit(s) in accordance with the schedule outlined in Table J.6, Closure Activity Schedule - Miscellaneous Units and discussed in Section J-9c(3) of this closure plan.

3. Within ninety days after receiving the final volume of hazardous wastes into the miscellaneous unit(s), Clean Harbors Kansas, LLC will remove all waste inventory from the unit(s) unless an extension has been requested and approved in accordance with 40 CFR 264.113(a). All waste inventories will be either treated on-site in accordance with the facility's RCRA/HSWA permit or transported to a permitted TSDF for off-site management.

4. The unit(s), ancillary equipment, structures, and secondary containment systems (when applicable) will be:

   A. Dismantled and disposed of as hazardous waste at a RCRA/HSWA permitted off-site disposal facility, or

   B. Decontaminated in accordance with Section J-4a and disposed of at a solid waste landfill, or

C. Decontaminated in accordance with Section J-4a and either salvaged for future use or left in place.

D. Successfully decontaminated equipment may be transferred to another TSDF for use.

5. This step applies only when closing an entire miscellaneous unit system, including its secondary containment. If only closing a miscellaneous unit, go to Step 6 below. When closing the miscellaneous unit(s) and its associated secondary containment, Clean Harbors Kansas, LLC will visually inspect the surface soils around the unit's containment area. Any visible evidence of contamination will be evaluated for hazardous constituents and (if contamination is present) subsequently removed for proper disposal or other off-site management in accordance with Section J-4a of this closure plan.

At final closure, the soil beneath the secondary containment systems will be closed in accordance with Section J-4a of this closure plan.

6. All wastes generated on-site from closure activities will be handled in accordance with Section J-4b of this closure plan.

7. Clean Harbors Kansas, LLC will complete closure activities within 180 days after receiving either the final volume of hazardous wastes into the miscellaneous unit(s) or closure plan approval by the agency (whichever is later), unless an extension has been requested and approved in accordance with 40 CFR 264.113(b).

8. The miscellaneous units are not disposal units. Also, all hazardous wastes and hazardous waste constituents will be removed from the miscellaneous units during closure and all structures will be decontaminated in accordance with this closure plan. Therefore, the miscellaneous units are not subject to the post-closure care requirements of 40 CFR 264.116 through 264.120.

J-9c(3) Unit Closure Schedule

Table J.6 outlines the anticipated schedule for the individual closure of a miscellaneous unit at the Clean Harbors Kansas, LLC facility. During final closure of the facility, all HWMUs may be closed either sequentially or simultaneously and in accordance with the schedule presented in Table J.3.

J-10 Financial Requirements

Closure costs are estimated in Appendix J-B, Closure Cost Estimate.

Financial requirements for hazardous waste TSDFs are addressed in Section K, Financial Requirements of this document.

Endnote

Groundwater Technology, Inc., Draft Remedial Investigation Report for the 29th d RI/FS, August 27, 1991.

APPENDIX J-A

TABLES

TABLE J.1

MAXIMUM EXTENT OF OPERATIONS

Clean Harbors Kansas, LLC - HAZARDOUS WASTE MANAGEMENT UNITS

HWMU[b]	UNIT	Wastes Stored/Function
C	CMU C100[c]	Hazardous waste - Container Management
C	CMU C200	Hazardous waste - Container Management
C	CMU C300	Hazardous waste - Container Management
C	CMU C400	Hazardous waste - Container Management
C	CMU C500	Hazardous waste - Container Management

[b] HWMU - Hazardous Waste Management Unit - All HWMUs at the HRI Wichita facility are either Container Management Areas (C), Tanks/Tank Systems (T), or Miscellaneous Units (M) as defined by 40 CFR 260.10. The unit closure procedures for these units are detailed in Section J-9a, Section J-9b, and Section J-9c respectively.

[c] Each section represents an individually contained area (i.e. CMU). See Figure J.1 for CMU locations.

C	CMU C600	Hazardous waste - Container Management
C	CMU C700	Hazardous waste - Container Management
C	CMU B100	Hazardous waste - Container Management
C	CMU B200	Hazardous waste - Container Management
C	CMU B300	Hazardous waste - Container Management

Clean Harbors Kansas, LLC

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Section J

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Appendix J-A - Tables

HWMU	UNIT	WASTES STORED/FUNCTION
C	CMU B400	Hazardous waste - Container Management
C	CMU D100	Hazardous waste - Container Management
C	CMU D200	Hazardous waste - Container Management
C	CMU D300	Hazardous waste - Container Management
C	CMU I100	Hazardous waste - Container Management
C	CMU I200	Hazardous waste - Container Management
C	CMU I300	Hazardous waste - Container Management
C	CMU J100	Hazardous waste - Container Management
C	CMU J200	Hazardous waste - Container Management
C	CMU J300	Hazardous waste - Container Management
C	CMU J400	Hazardous waste - Container Management
C	CMU J500	Hazardous waste - Container Management
C	CMU J600	Hazardous waste - Container Management
C	CMU J700	Hazardous waste - Container Management
C	CMU L100	Hazardous waste - Container Management
C	CMU P100	Hazardous waste - Container Management
C	CMU P200	Hazardous waste - Container Management
T	V-1	Hazardous Waste Liquid
T	V-2	Hazardous Waste Liquid
T	V-3	Hazardous Waste Liquid
T	V-4	Hazardous Waste Liquid

HWMU	UNIT	WASTES STORED/FUNCTION
T	V-5	Hazardous Waste Liquid
T	V-6	Hazardous Waste Liquid
T	V-7	Hazardous Waste Liquid
T	V-8	Hazardous Waste Liquid
T	V-9	Hazardous Waste Liquid
T	V-10	Hazardous Waste Liquid
T	V-11	Hazardous Waste Liquid
T	V-12	Hazardous Waste Liquid
T	V-13	Hazardous Waste Liquid
T	V-14	Hazardous Waste Liquid
T	V-15A	Hazardous Waste Liquid
T	V-15B	Hazardous Waste Liquid
T	V-15C	Hazardous Waste Liquid
T	V-15D	Hazardous Waste Liquid
T	V-16	Hazardous Waste Liquid
T	V-17	Hazardous Waste Liquid
M	V-20	Shredder Unit
M	V-21	Granulator Unit
M/T	V-26	Dispersing Unit

Clean Harbors Kansas, LLC

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Appendix J-A - Tables

HWMU	UNIT	WASTES STORED/FUNCTION
M	V-34	Drum Washing Unit
M	V-35	Drum Scraping Unit
C	All CMUs	Treatment in Containers

Clean Harbors Kansas, LLC

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Section J

Closure Plan

Appendix J-A - Tables

TABLE J.2 HAS BEEN REMOVED FROM THE CLOSURE PLAN

March 22, 1994
Revision No. 7

TABLE J.3

CLOSURE ACTIVITY SCHEDULE - FINAL FACILITY CLOSURE

Calendar Days Lapsed	Closure Activity
-45	Notification to KDHE or the EPA Region 7 Administrator.
0	Receipt of known final volume of hazardous waste or receipt of final closure plan approval from agency (whichever is later). Begin work-force mobilization. Begin treatment and removal of tank waste inventory. Begin treatment and removal of container waste inventory.
90	Complete treatment and removal of all hazardous waste inventories.
120	Complete decontamination of tanks, container management units and miscellaneous units.
150	Complete dismantling/removal of all generated wastes, temporary storage units, and decontaminated tanks, equipment, and structures (if removal is necessary). Visually inspect surface soils for contamination and begin remediation procedures if necessary.
180	Complete final closure activities.
200	Inspection of facility by a Professional Engineer.

240	Submit a certification of closure to KDHE or the EPA Region 7 Administrator.

TABLE J.4

CLOSURE ACTIVITY SCHEDULE - CONTAINER MANAGEMENT UNIT

Calendar Days Lapsed	Closure Activity
0	Receipt of known final volume of hazardous waste into the container management unit or receipt of closure plan approval from agency (whichever is later). Begin work-force mobilization.
	Begin treatment and removal of waste inventory.
90	Complete treatment and removal of all hazardous waste inventories.
120	Complete emptying all drums and removal of drums from facility.
150	Complete decontamination of secondary containment structures and hazardous waste handling equipment.
	Visually inspect surface soils for contamination and begin remediation procedures if necessary.
180	Complete final closure activities.

TABLE J.5

CLOSURE ACTIVITY SCHEDULE - TANKS AND TANK SYSTEMS

Calendar Days Lapsed	Closure Activity
0	Receipt of known final volume of hazardous waste or receipt of closure plan approval from agency (whichever is later). Begin work-force mobilization.
	Begin treatment and removal of tank waste inventory.
90	Complete treatment and removal of all hazardous waste inventories.
120	Complete decontamination of tanks, ancillary equipment, and secondary containment systems (when applicable).
150	Complete dismantling/removal of decontaminated tanks, equipment, and secondary containment structures (when removal is necessary).
	Visually inspect surface soils for contamination and begin remediation procedures if necessary.
180	Complete final closure activities.

TABLE J.6

CLOSURE ACTIVITY SCHEDULE - MISCELLANEOUS UNITS

Calendar Days Lapsed	Closure Activity
0	Receipt of known final volume of hazardous waste or receipt of closure plan approval from agency (whichever is later). Begin work-force mobilization.
120	Complete decontamination of miscellaneous unit(s), ancillary equipment, and secondary containment systems (when applicable).
150	Complete dismantling/removal of decontaminated miscellaneous unit(s), equipment, and secondary containment structures (when removal is necessary). Visually inspect surface soils for contamination and begin remediation procedures if necessary.
180	Complete final closure activities.

APPENDIX J-B

CLOSURE COST ESTIMATE

Summary - Closure Cost Estimate

Clean Harbors Kansas, LLC
Wichita, Kansas

The following table is a summary of the cost for closing the Clean Harbors Kansas, LLC facility. The figures for closing the facility are set forth assuming the plant has the maximum storage of hazardous waste and that tanks V-29, V-30, V-31, and V-32 are not yet closed. The Closure Cost Estimate has been prepared in accordance with 40 CFR 264.142 (Cost Estimate For Closure). Cost estimate calculations are provided in the seven sections attached. In the first section, the cost for transporting and disposing of the stored waste is calculated. The second section calculates the cost of evaluating and decontaminating soils and concrete. The third section estimates the cost of decontaminating the existing hazardous waste management equipment in the plant. Transportation and disposal of the residues collected are calculated in the next three sections. An independent registered professional engineer's cost is figured into the last section, as required in the Federal Register. Section VII calculates the contingency required by 40 CFR 264.142.

Cost	Section
$828,290.77	Waste Disposal of Maximum Inventory
$145,430.25	Assessment of Soil and Concrete Decontamination
$19,851.75	Equipment Decontamination
$25,379.26	Management of Aqueous Decontamination Residue
$1,562.19	Management of Kiln Fuel Decontamination Residue
$1,350.58	Management of Incinerable Decontamination Residue
$3,640.00	Closure Certification
$1,025,504.80	Subtotal
$153,825.72	Contingency 15%
$1,179,330.52	**Total Closure Cost Estimate**

I. WASTE DISPOSAL OF MAXIMUM INVENTORY

ASSUMPTIONS

55 GALLONS/DRUM
80 DRUMS/LOAD
6000 GALLONS/TANKER
$20.00 /HOUR LAB LABOR

$8.65 /HOUR LABOR
1,100 GALLONS/HOUR PUMPING
75 DRUMS/HOUR LOADING
$3.50 /MILE TRANSPORTATION

STORAGE SUMMARY

VESSEL	CAPACITY
V-1	7,181
V-2	7,084
V-3	7,181
V-4	7,181
V-5	20,895
V-6	20,895
V-7	7,181
V-8	7,181
V-9	5,078
V-10	5,078
V-11	5,078
V-12	5,078
V-13	5,078
V-14	5,078
V-15A	2,859
V-15B	2,859
V-15C	2,859
V-15D	2,859
V-16	9,028
V-17	522
V-18	489
V-28	1,128
V-29	90
V-30	90
V-31	115
V-32	115
TOTAL	137,461

STORAGE BUILDING	STORAGE AREA (SQ.FT.)	STORAGE CAPACITY (GAL)	DRUM EQUIVALENTS (55 GAL)
BUILDING D	13,803	46,640	848
PROCESSING AREA	6,278	9,900	180
BUILDING C	13,520	99,110	1,802
DRUM DOCK	2,660	14,960	272
BUILDING B	7,304	55,000	1,000
BUILDING I	5,292	50,600	920
BUILDING J	6,318	49,280	896
TOTAL	55,175	325,490	5,918

INVENTORY REMOVAL

CONTAINER INVENTORY

DISPOSAL METHOD	PECENTAGES	DRUMS	UNIT COST	DISPOSAL LOCATIOI	MILEAGE	DISPOSAL COST
LIQUID KILN FUEL	7	414	$0.21 /GAL	FREDONIA, KS	100	$4,781.70
SOLID KILN FUEL	40	2367	$50.00 /DRUM	FREDONIA, KS	100	$118,350.00
INCINERATION	30	1776	$3.00 /GAL	COFFEYVILLE, KS	150	$293,040.00
LANDFILL	13	769	$275.00 /DRUM	WAYNOKA, OK	150	$211,475.00
DEEP WELL	3	178	$1.00 /GAL	DALLAS, TX	364	$9,790.00
RECYCLE	7	414	$0.21 /GAL	TULSA, OK	180	$4,781.70
TOTAL	100	5918				$642,218.40

TANK INVENTORY

DISPOSAL METHOD	PECENTAGES	GALLONS	COST	DISPOSAL LOCATIOI	MILEAGE	DISPOSAL COST
LIQUID KILN FUEL	46	63,232	$0.21 /GAL	FREDONIA, KS	100	$13,278.73
INCINERATION	10	13,746	$3.00 /GAL	COFFEYVILLE, KS	150	$41,238.30
DEEP WELL	33	45,362	$1.00 /GAL	DALLAS, TX	364	$45,362.13
RECYCLE	11	15,121	$0.21 /GAL	TULSA, OK	180	$3,175.35
TOTAL	100	137,461				$103,054.51

LABOR

3,136 DRUMS TO LOAD	$361.69 LOADING
2,782 DRUMS TO TANKERS	$1,203.22 PUMPING
137,461 GALLONS TO TANKERS	$1,080.94 PUMPING
	$2,645.84 TOTAL LABOR

TRANSPORTATION

WASTES FROM CONTAINERS

DISPOSAL METHOD	# OF LOADS	DRUMS	DISPOSAL LOCATION	MILEAGE	COST
LIQUID KILN FUEL	4	414	FREDONIA, KS	100	$1,400.00
SOLID KILN FUEL	30	2387	FREDONIA, KS	100	$10,500.00
INCINERATION	17	1776	COFFEYVILLE, KS	150	$8,925.00
LAND FILL	10	769	WAYNOKA, OK	150	$5,250.00
DEEP WELL	2	178	DALLAS, TX	364	$2,548.00
RECYCLE	4	414	TULSA, OK	180	$2,520.00
TOTAL	67	5918			$31,143.00

WASTES FROM TANKS

DISPOSAL METHOD	# OF LOADS	GALLONS	DISPOSAL LOCATION	MILEAGE	COST
LIQUID KILN FUEL	11	63,232	FREDONIA, KS	100	$3,850.00
INCINERATION	3	13,746	COFFEYVILLE, KS	150	$1,575.00
DEEP WELL	8	45,362	DALLAS, TX	364	$10,192.00
RECYCLE	3	15,121	TULSA, OK	180	$1,890.00
TOTAL	25	137,461			$17,507.00

NOTE

SOLIDS (E.G., SOLID KILN FUEL, LANDFILLED WASTES) ARE SHIPPED IN DRUMS AT 80 DRUMS PER LOAD

LIQUIDS ARE SHIPPED IN BULK AT 6000 GALLONS PER LOAD

CONTAINER DISPOSAL

ACTIVITY	PARAMETER	UNIT VALUES	RESIDUE GENERATED	COST
DRUM WASHING				
	NO. OF DRUMS	2,782 DRUMS		
	LABOR	$8.65 PER HOUR		
	TIME	60 DRUMS/HOUR		$401.07 LABOR WASHING
	KILN FUEL GENERATED	2 GAL/DRUM	5,564 GALLONS KILN FUEL	

NOTE
****
THE DRUM WASHER CAN PROCESS 60 DRUMS/HOUR
THE WASHER GENERATES 2 GALLONS ADDITIONAL SOLVENT WASTE PER DRUM WASHED
TRANSPORTATION AND DISPOSAL OF RESIDUE GENERATED IS CALCULATED IN LATER SECTIONS
****

ACTIVITY	PARAMETER	UNIT VALUES	RESIDUE GENERATED	COST
DRUM CRUSHING	LABOR	$8.65 PER HOUR		
	TIME	30 DRUMS/HOUR		$802.14 LABOR CRUSHING
	TRANS & DISP	$10.00 PER DRUM		$27,820.00 DRUM DISPOSAL

NOTE
****
THE DRUM CRUSHER CAN PROCESS 30 DRUMS/HOUR
TRANSPORTATION AND DISPOSAL ARE INCLUDED IN THE USPCI COST PER DRUM
****

TANK DECONTAMINATION

ACTIVITY	PARAMETER	UNIT VALUES	RESIDUE GENERATED	COST
TANK WASHING				
	LABOR	$8.65 PER HOUR		$2,698.80 LABOR WASHING
	TIME	4 HOURS/TANK		
	NO. OF TANKS	26 TANKS		
	CREW SIZE	3 MEN/TANK		
	WASTE WATER GENERATED	165 GAL/TANK	4,290 GALLONS WASTE WATER	

NOTE
****
3-MAN CREW, 4 HOURS/TANK
THE RESIDUE VOLUME IS ESTIMATED BASED UPON PAST EXPERIENCE
****

SECTION I SUBTOTAL $828,290.77

II. ASSESSMENT OF SOIL AND CONCRETE CONTAMINATION

ACTIVITY	PARAMETER	UNIT VALUES	RESIDUE GENERATED	COST
CORE AND SAMPLE CONCRETE	LABOR EQUIPMENT TIME NO. OF SAMPLES	$20.00 PER HOUR $15.00 PER SAMPLE 1 HOUR/SAMPLE 25 SAMPLES		$500.00 LABOR SAMPLING $375.00 CORING EQUIPMENT
ANALYSIS	LABORATORY FEE	$1,500.00 FOR TCLP & F SCAN		$37,500.00 ANALYTICAL
DECONTAMINATE THE CONCRETE	LABOR AND EQUIPMENT TIME WASTEWATER GENERATED AREA	$45.00 PER HOUR 1,500 FT2/HOUR 300 GAL/HOUR 55,175 FT2	11035 GALLONS WASTE WATER	$1,655.25 DECONTAMINATION
SAMPLE AND ANALYZE RINSE WATER	LABOR TIME EQUIPMENT # OF SAMPLES	$20.00 PER HOUR 1 HOUR/SAMPLE $1,500.00 PER SAMPLE 20 SAMPLES		$400.00 SAMPLING $30,000.00 ANALYTICAL
CONTRACTED HEALTH RISK ASSESSMENT				$75,000.00
SECTION II SUBTOTAL				$145,430.25

NOTE

ASSUME A 6 INCH CONCRETE SLAB
TRANSPORTATION AND DISPOSAL OF RESIDUE GENERATED IS CALCULATED IN LATER SECTIONS

III. EQUIPMENT DECONTAMINATION

ACTIVITY	PARAMETER	UNIT VALUES	RESIDUE GENERATED	COST
STEAM CLEAN EQUIPMENT (I.E., BOBCAT, FORKLIFT)	LABOR	$8.65 PER HOUR		
	TIME	3 HOURS/LOADER		
	EQUIPMENT	5 LOADERS		$129.75 LABOR STEAMING
	WASTE WATER GENERATEC	100 GAL/HOUR	1,500 GALLONS WASTE WATER	
STEAM CLEAN MISCELLANEOUS UNITS	LABOR	$8.65 PER HOUR		
	DISASSEMBLE UNITS	40 HOURS/UNIT		$8,304.00 LABOR STEAMING
	DECONTAMINATE UNITS	40 HOURS/UNIT		$8,304.00 LABOR DISSASSBLING
	NO. OF UNITS	6 UNITS		
	CREW SIZE	4 MEN		
	WASTE WATER GENERATEC	300 GAL/UNIT	1,800 GALLONS WASTE WATER	
	INCINERATION GENERATED	0.5 DRUMS/UNIT	3 DRUMS INCINERATION	
STEAM CLEAN DRUM HANDLING EQUIPMENT	LABOR	$8.65 PER HOUR		$3,114.00 LABOR STEAMING
	DISASSEMBLE UNITS	2 HOURS/UNIT		
	DECONTAMINATE UNITS	10 HOURS/UNIT		
	NO. OF UNITS	15 UNITS (OR LESS)		
	CREW SIZE	2 MEN		
	WASTE WATER GENERATEC	100 GAL/UNIT	1,500 GALLONS WASTE WATER	
	INCINERATION GENERATED	2 DRUMS	30 DRUMS INCINERATION	

NOTE

TRANSPORTATION AND DISPOSAL OF RESIDUE GENERATED IS CALCULATED IN LATER SECTIONS

SECTION III SUBTOTAL $19,851.75

IV. MANAGEMENT OF AQUEOUS DECONTAMINATION RESIDUE

ACTIVITY	PARAMETER	UNIT VALUES	RESIDUE GENERATED	COST
PUMP RESIDUE FROM THE PLANT	VOLUME OF WASTEWATER	20,125 GALLONS		
	LABOR	$8.65 PER HOUR		$158.26 LABOR LOADING
	TIME	1100 GALLONS/HOUR		
DISPOSAL	TRANSPORTATION	$3.50 PER MILE		
	DISTANCE TO DALLAS	364 MILES		$5,096.00 TRANSPORTATION
	DISPOSAL FEE	$1.00 PER GALLON		$20,125.00 DISPOSAL
	LOAD SIZE	6,000 GAL/LOAD		
	NUMBER OF LOADS	4 LOADS		
SECTION IV SUBTOTAL				$25,379.26

V. MANAGEMENT OF KILN FUEL DECONTAMINATION RESIDUE

ACTIVITY	PARAMETER	UNIT VALUES	RESIDUE GENERATED	COST
********	***********	****** ********	********* *************	******
TOTAL KILN FUEL GENERATED		5,564 GALLONS		
LOADING KILN FUEL ON TRUCKS	LABOR TIME	$8.65 PER HOUR 1,100 GAL/HOUR		$43.75 LABOR LOADING
DISPOSAL AND TRANSPORTATION	TRANSPORTATION DISTANCE TO FREDONIA DISPOSAL FEE LOAD SIZE NUMBER OF LOADS	$3.50 PER MILE 100 MILES $0.21 PER GALLON 6000 GALLONS/LOAD 1 LOADS		$350.00 TRANSPORTATION $1,168.44 DISPOSAL
SECTION V SUBTOTAL				$1,562.19

VI. MANAGEMENT OF INCINERABLE DECONTAMINATION RESIDUE

ACTIVITY	PARAMETER	UNIT VALUES	RESIDUE GENERATED	COST
********	************	****** ********	********* *************	******
INCINERABLE WASTES GENERATED		5 DRUMS		
LOADING ON TRUCKS	LABOR TIME	$8.65 PER HOUR 75 DRUMS/HOUR		$0.58 LABOR LOADING
TRANSPORTATION AND DISPOSAL	TRANSPORTATION DISTANCE TO COFFEYVILLE DISPOSAL FEE LOAD SIZE NUMBER OF LOADS	$3.50 PER MILE 150 MILES $3.00 PER GALLON 6000 GALLONS/LOAD 1 LOADS		$525.00 TRANSPORTATION $825.00 DISPOSAL
SECTION VI SUBTOTAL				$1,350.58

VII. CLOSURE CERTIFICATION

ACTIVITY	PARAMETER	UNIT VALUES	RESIDUE GENERATED	COST
A. PROFESSIONAL ENGINEERING SERVICES				
CLOSURE CERTIFICATION	ENGINEER'S FEE	$45.50 PER HOUR		
	TIME	80 HOURS		$3,640.00

NOTE

2 SITE INSPECTIONS/WEEK, 4 HOURS/INSPECTION, 8 WEEKS, 8 HOURS OF OF CLOSURE PLAN REVIEW, 8 HOURS FOR CERTIFICATION PREPARATION

SECTION VII SUBTOTAL	$3,640.00

VIII. CONTINGENCY AND TOTALS

ACTIVITY	PARAMETER	UNIT VALUES	RESIDUE GENERATED	COST
TOTAL OF SECTION I–V				$1,025,504.80
CONTINGENCY		15.00%		$153,825.72
TOTAL CLOSURE COST ESTIMATE				$1,179,330.52

CLOSURE COST ESTIMATIONS INCORPORATE THE FOLLOWING REFERENCES

THE RICHARDSON RAPID SYSTEM
PRICESS PLANT CONSTRUCTION
ESTIMATING STANDARDS VOLUME 1
SITE WORK, PILING, CONCRETE
RICHARDSON ENGINEERING, INC
OCTOBER, 1988

EPA GUIDANCE MANUAL: COST
ESTIMATES FOR CLOSURE AND POST-
CLOSURE PLANS (SUBPARTS G AND H)
OSWER POLICY DIRECTIVE #9476.00-6

HYDROCARBON RECYCLERS, INC.
PAST EXPERIENCE

DISPOSAL FACILITIES UTILIZED FOR DISPOSAL AND TRANSPORTATION COSTS

APTUS ENVIRONMENTAL SERVICES
HWY. 169 N. INDUSTRIAL PARK
COFFEYVILLE, KANSAS

GIBRALTER WASTEWATERS
DALLAS, TEXAS FACILITY
INJECTION WELL DISPOSAL

SYSTEC
FREDONIA, KANSAS CEMENT
KILN FACILITY
DISPOSAL AS WASTE DERIVED FUEL

U.S. POLLUTION CONTROL, INC
LONE MOUNTAIN, OKLAHOMA FACILITY
LANDFILL DISPOSAL

APPENDIX J-C

COMPLIANCE SCHEDULE
CLOSURE OF V-29, V-30, V-31, V-32

March 22, 1994
Revision No. 7

Tanks V-29, V-30, V-31, and V-32 were used under Interim Status at the facility as sparge (aeration) tanks. These tanks are no longer necessary to the operation of the facility. Clean Harbors Kansas, LLC plans to close these tanks in accordance with the procedures discussed in Section J-9(b) of the Closure Plan. KDHE has requested that Clean Harbors Kansas, LLC submit a compliance schedule for closure of these four tanks as part of the revisions to the Part B permit application, rather than preparing a separate request for approval to close these tanks. This Attachment to the Closure Plan constitutes the compliance schedule.

Tanks V-29 and V-30 are each 90 gallon tanks. Tanks V-31 and V-32 hold 115 gallons each. All four of the tanks are located in Area D300, in a secondary containment area shared with other process units and container storage. At this time, the tanks have been emptied and are out of service. Clean Harbors Kansas, LLC does not intend to put these tanks back into hazardous waste service at the site.

Clean Harbors Kansas, LLC plans to close these tanks following the partial closure procedures outlined in Sections J-4 and J-9(b) of the RCRA Part B permit application. The steps to be taken are listed below.

1. Surfaces will be scraped, sandblasted, brushed, or swept to remove all loose or caked residue. Surfaces will then be triple rinsed. The first wash/rinse will be performed with a high-pressure stream of steam or water with suitable detergents or other cleaning additives. The second wash/rinse will be performed using clean water with cleaning additives. Accumulated liquids from the two first washes will be collected and handled in accordance with Section J-4b of this closure plan. The third wash/rinse will be performed with clean (potable) water.

2. The equipment will be visually inspected after the triple wash/rinse to assess the presence of visible residue. If necessary, the facility will repeat all, or part, of the above procedures.

3. A representative sample will be taken of the rinse water from the final rinse of each hazardous waste management unit. These samples will be analyzed according to the Toxic Characteristic Leaching Procedure (TCLP) (40 CFR 261.24 as amended June 29, 1990).

4. A unit will be considered decontaminated when the rinsate sample analysis results are lower than the values/levels listed in Table J.2, Decontamination Rinsate Analysis, and when no visible residues remain on the unit.

5. If the unit is not decontaminated after performing Steps 1 through 4, the facility will either repeat the above procedures or dismantle the unit for further management and/or disposal at an off-site permitted TSDF as a hazardous waste. Equipment disposed of in a landfill will meet the applicable Land Disposal Restriction (LDR) standards of 40 CFR 268.

Because the secondary containment system in which Tanks V-29, V-30, V-31, and V-32 are located serves as containment for other units that remain active, it will not be decontaminated during this partial closure. Similarly, ancillary equipment (e.g., pumps, piping) that is associated with other active units in the area will not be closed during this partial closure.

Clean Harbors Kansas, LLC is prepared to initiate partial closure of Tanks V-29, V-30, V-31, and V-32 upon receipt of approval from the KDHE. Partial closure will be performed in accordance with the schedule presented in Table J.7.

Table J.7

Schedule for Partial Closure
Tanks V-29, V-30, V-31, V-32

Partial Closure Activity	Days to Complete (from date authorized to proceed)
Decontaminate each tank according to the procedures in the Closure Plan.	30
Decontaminate ancillary equipment unique to the tanks addressed in this partial closure.	30
Analytical work complete.	60
Receive engineer's certification of closure.	90
Provide certification of closure to agency; closure complete.	105

Table of Contents

List of Appendices

List of Acronyms

Clean Harbors Kansas, LLC (CHK)
Certificate of Insurance for Closure or Post Closure Care (CI)
Treatment, Storage and Disposal (TSD)
Kansas Administrative Regulations (KAR)

K-1 **Financial Assurance:** 40 CFR 264.143

Clean Harbors Kansas, LLC (CHK) has chosen to use a Certificate of Insurance for Closure or Post Closure Care (CI) to meet facility closure financial assurance requirements. The CI is currently issued by the National Insurance and Indemnity Corporation of South Burlington, Vermont.

Appendix K-A, Financial Assurance Information, summarizes facility information, funds assured for closure, and details regarding the CI. The CI is amended annually for inflation as required by 40 CFR 264.142(b) for hazardous waste Treatment, Storage, and Disposal (TSD) facilities operating under a Hazardous Waste Permit. The facility closure cost estimate and corresponding funding instrument will be adjusted on an annual basis for: 1) inflation; and 2) whenever facility changes affecting closure costs occur. A copy of the CI is presented in Appendix K-B, Certificate of Insurance for Closure or Post Closure Care.

One of the options specified in 40 CFR 264.143 paragraphs (a) through (f) must be established to provide financial assurance for closure of a TSD facility. CHK may convert the financial instrument described above to an alternate option specified by federal regulations.

K-2 **Insurance Coverage:** 40 CFR 264.147

CHK maintains insurance policies to cover general liability, automobile liability, workers compensation, employers' liability and environmental impairment liability (pollution legal liability). The environmental impairment liability includes both sudden and non-sudden pollution coverage. A copy of the Hazardous Waste Facility Certificate of Insurance for accidental occurrences is presented in Appendix K-C, Hazardous Waste Certificate of Insurance.

K-3 **Notice in Deed:** 40 CFR 119(b)(1)

In compliance with Kansas Administrative Regulations (KAR) 28-31-8(c) and in anticipation of Post-closure Notices required of TSDFs, CHK has submitted correspondence dated April 16, 1991 regarding property use for hazardous waste management activities to the Registrar of Deeds for Sedgwick County. Copies of these documents are presented in Appendix K-D, Notice in Deed.

Appendix K-A

Financial Assurance Information

Facility Information

EPA ID NO:	KSD007246846
Facility Name:	Clean Harbors Kansas, LLC
Facility Location:	2549 North New York, Wichita, Kansas 67219

Certificate of Insurance for Closure or Post Closure Care (CI)

CI Policy Number:	PEC0007078
Issuing Institution:	Indian Harbor Insurance Company, Stamford, CT
Execution Date:	March 11, 2002
Funds Assured:	$ 1,519,094.00

Appendix K-B

Certificate of Insurance for Closure or Post Closure Care

December 20, 1995
Revision No. 2

CERTIFICATE OF INSURANCE FOR CLOSURE AND/OR POST-CLOSURE CARE

Name and Address of Insurer (herein called the "Insurer"):

Indian Harbor Insurance Company
Seaview House, 70 Seaview Avenue
Stamford, CT 06902-6040

Name and Address of Insured (herein called the "Insured"):

Safety-Kleen (Wichita), Inc.
2549 North New York Street
Wichita, KS 67219

<u>FACILITY COVERED:</u>

EPA ID Number:	KSD 007 246 846
Name:	Safety-Kleen (Wichita), Inc.
Address:	2549 North New York St., Wichita, KS 67219
Closure Amount:	$1,519,094
Face Amount:	$1,519,094
Policy Number:	PEC0007078
Effective Date:	March 11, 2002

The Insurer hereby certifies that it has issued to the Insured the policy of insurance identified above to provide financial assurance for closure for the facility identified above. The Insurer further warrants that such policy conforms in all respects with the requirements of 40 CFR 264.143(e), 264.145(e), 265.143(d), and 265.145(d), as applicable and as such regulations were constituted on the date shown immediately below. It is agreed that any provision of the policy inconsistent with such regulations is hereby amended to eliminate such inconsistency.

Whenever requested by the Secretary of the Kansas Department of Health and Environment, the Insurer agrees to furnish to the Secretary a duplicate original of the policy listed above, including all endorsements thereon.

I hereby certify that the wording of this certificate is identical to the wording specified in 40 CFR 264.151(e) as such regulations were constituted on the date shown immediately below.

____
(Authorized signature for Insurer)

Brett McGovern, Senior Underwriter
Authorized Representative of Indian Harbor Insurance Company

____
(Signature of witness or notary)

March 19, 2002
(Date)

SEAL

Appendix K-C

Hazardous Waste Certificate of Insurance

MARSH USA INC. — CERTIFICATE OF INSURANCE

CERTIFICATE NUMBER
ATL-000145014-09

PRODUCER
Marsh
Two Liberty Square
75 Beattie Place
ite 300
eenville, SC 29601-2164
tn: Abi Potter
586000

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER OTHER THAN THOSE PROVIDED IN THE POLICY. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES DESCRIBED HEREIN.

INSURED
SAFETY-KLEEN SERVICES, INC.
AND ITS SUBSIDIARY AND AFFILIATED COMPANIES
1301 GERVAIS STREET
SUITE 300
COLUMBIA, SC 29201

COMPANIES AFFORDING COVERAGE

COMPANY	
A	AMERICAN HOME ASSURANCE CO
B	NATIONAL UNION FIRE INSURANCE COMPANY
C	INSURANCE CO STATE OF PA
D	GREENWICH INSURANCE COMPANY

COVERAGES This certificate supersedes and replaces any previously issued certificate for the policy period noted below. 11

THIS IS TO CERTIFY THAT POLICIES OF INSURANCE DESCRIBED HEREIN HAVE BEEN ISSUED TO THE INSURED NAMED HEREIN FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THE CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, CONDITIONS AND EXCLUSIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY	1737814	09/01/01	09/01/02	GENERAL AGGREGATE	$ 2,000,000
	X COMMERCIAL GENERAL LIABILITY				PRODUCTS - COMP/OP AGG	$ 2,000,000
	CLAIMS MADE X OCCUR				PERSONAL & ADV INJURY	$ 500,000
	OWNER'S & CONTRACTOR'S PROT				EACH OCCURRENCE	$ 500,000
	X $500,000 SIR				FIRE DAMAGE (Any one fire)	$ 500,000
					MED EXP (Any one person)	$ 50,000
A	AUTOMOBILE LIABILITY	5273498 - All Other States	09/01/01	09/01/02	COMBINED SINGLE LIMIT	$ 2,000,000
A	X ANY AUTO	5273500 -TX	09/01/01	09/01/02		
A	ALL OWNED AUTOS	5273501- MA, VA	09/01/01	09/01/02	BODILY INJURY (Per person)	$
	SCHEDULED AUTOS					
	HIRED AUTOS				BODILY INJURY (Per accident)	$
	NON-OWNED AUTOS					
	X MCS-90				PROPERTY DAMAGE	$
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
	ANY AUTO				OTHER THAN AUTO ONLY:	
					EACH ACCIDENT	$
					AGGREGATE	$
B	EXCESS LIABILITY	BE8713603	09/01/01	09/01/02	EACH OCCURRENCE	$ 10,000,000
	X UMBRELLA FORM				AGGREGATE	$ 10,000,000
	OTHER THAN UMBRELLA FORM				*N/A TO INSURER "D"	$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	1663520 - All Other States	09/01/01	09/01/02	X WC STATU-TORY LIMITS / OTH-ER	
C		1663540 - CA	09/01/01	09/01/02	EL EACH ACCIDENT	$ 1,000,000
C	THE PROPRIETOR/ PARTNERS/EXECUTIVE OFFICERS ARE: INCL / EXCL	1663546 - WI	09/01/01	09/01/02	EL DISEASE-POLICY LIMIT	$ 1,000,000
					EL DISEASE-EACH EMPLOYEE	$ 1,000,000
	OTHER					
D	CONSULTANTS ENVIR LIAB	PEC0009894	09/01/01	09/01/02	EACH LOSS	5,000,000
					AGGREGATE	10,000,000
D	POLLUTION LEGAL LIAB	PEC0007099	10/15/00	11/17/02	EACH LOSS	10,000,000
					AGGREGATE	10,000,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS (LIMITS MAY BE SUBJECT TO DEDUCTIBLES OR RETENTIONS)
COVERAGE APPLIES TO ANY AND ALL SUBSIDIARY OR AFFILIATED COMPANIES.

CERTIFICATE HOLDER

SAMPLE - CORPORATE, SERVICES
SAFETY-KLEEN SERVICES, INC.
AND ITS SUBSIDIARY & AFFILIATED COMPANIES
1301 GERVAIS STREET, SUITE 300
COLUMBIA, SC 29201

CANCELLATION

SHOULD ANY OF THE POLICIES DESCRIBED HEREIN BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE INSURER AFFORDING COVERAGE WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED HEREIN, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER AFFORDING COVERAGE, ITS AGENTS OR REPRESENTATIVES.

MARSH USA INC.
BY:

MM1(9/99) VALID AS OF: 08/30/01

Appendix K-D

Notice in Deed

Sedgwick County Courthouse
4th Floor
Registrar of Deeds
525 N. Main
Wichita, Ks. 67203

4/16/91

Dear Registrar of Deeds

This letter serves as official owner notification for the property at 2549 N. New York Ave., HRI operated property.

North Industrial Park Fourth Addition,

	Key Number
block 2, lot 1	87-0- -B-1 3826-012583-6703

This is in accordance with Kansas environmental regulation K.A.R. 28-31-8c. This property has been used to manage hazardous waste and all records regarding permits, closure or both are available for review at the Kansas Department of Health and Environment offices in Topeka.

David Trombold

David Trombold
Vice President
Associated Chemical, Inc.

MONICA D. BORDEN
Notary Public – State of Kansas
My Appt. Expires 2-16-94

Monica D. Borden
9-13-91

For an acknowledgment in a reprsentative capacity:
State of Kansas
(County) of Sedgwick
This instrument was acknowledged before me on
September 13, 1991
by David Trombold
as Vice President
of Associated Chemical, Inc.

Monica D. Borden
(Signature of notarial officer)

Title (and Rank)

Sedgwick County Courthouse
4th Floor
Registrar of Deeds
525 N. Main
Wichita, Ks. 67203

4/16/91

Dear Registrar of Deeds

This letter serves as official owner notification for the property at 2549 N. New York Ave., HRI operated property.

North Industrial Park Fourth Addition,

		Key Number
block 1,	lot 2	89-0- -B-13819-060842-6703
	lot 3	89-0- -B-13820-026393-6703
	lot 4	89-0- -B-13821-026394-6703
	lot 5	89-0- -B-13822-026395-6703

This is in accordance with Kansas environmental regulation K.A.R. 28-31-8c This property has been used to manage hazardous waste and all records regarding permits, closure or both are available for review at the Kansas Department of Health and Environment offices in Topeka.

David Trombold

David Trombold

MONICA D. BORDEN
Notary Public – State of Kansas
My Appt. Expires 2-16-94

Monica D. Borden
9-13-91

For an acknowledgment in a representative capacity:
State of Kansas
(County) of Sedgwick
This instrument was acknowledged before me on
September 13, 1991
by David Trombold
as Vice President
of Associated Chemical, Inc.

Monica D. Borden
(Signature of notarial officer)

Title (and Rank)

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Acronym Table

Solid Waste Management Unit (SWMU)
Clean Harbors Kansas, LLC (CHK)
Kansas Administrative Regulations (KAR)
United States Environmental Protection Agency (USEPA)

L-1 Information Requirements for Solid Waste Management Units: 40 CFR 270.14(d)

The purpose of this section is to provide information regarding the Solid Waste Management Unit (SWMU)s at the Clean Harbors Kansas, LLC facility located in Wichita, Kansas. This section is provided to fulfill the requirements of the Kansas Administrative Regulations (KAR), Title 28, Article 31 and 40 CFR Part 270. Article 31, Hazardous Waste Management Standards and Regulations, of the KAR incorporates, with few additions, the RCRA regulations contained in 40 CFR Parts 260 through 270. Therefore, this section will refer only to the federal regulations.

L-1a Description of Solid Waste Management Units: 40 CFR 270.14(d)(1)

A description of the Clean Harbors Kansas, LLC (CHK) facility is presented in section B (Facility Description) of this RCRA permit application. Specific information regarding active SWMUs utilized for hazardous waste management is presented in Sections D (Use and Management of Containers), E (Tank Systems), and M (Other Regulated Units). These sections include the following information:

! Type, Location and Description of the SWMUs:

Sections B, D, E, and M (Facility Description, Use and Management of Containers, Tank Systems, and Other Regulated Units) of the RCRA permit application contain descriptions of RCRA regulated SWMUs at the facility. These descriptions include the general dimensions of these units. In addition, the Facility Description, Section B also contains a topographic map illustrating the location of each SWMU within the facility as required by 40 CFR 270(b)(19).

! Dates of Operation:

CHK is an existing waste management facility. However, the site has been used for other business purposes by companies which have sequentially located at the site for some forty years. The industrial district of the area developed over the past 95 years. The history of hazardous waste operations under EPA ID No. KSD007246846 began in 1979 with Reid Supply Co., Inc. Conservation Services, Inc. purchased certain assets, including the permit (e.g., from Reid Supply Co. in 1986. Subsequently, Hydrocarbon Recyclers, Inc. of Wichita acquired the capital stock of Conservation Services, Inc. in 1987.

! Description of Wastes:

The CHK facility stores, treats, and recovers for recycling hazardous and nonhazardous wastes. The types of wastes managed in the RCRA regulated SWMUs are identified in Sections A (Part A Application) and C (Waste Characterization). The sampling and analysis provisions for managing these waste types are provided in Appendix C-A (Waste Analysis Plan) of Section C.

L-1b SWMU - Area West of Building B 40 CFR 270.14(d)

Excavation of a roof drainage system resulted in the discovery of an additional SWMU, apparently consisting of buried paint cans, located west of Building B. Other wastes may be present as well; the SWMU has not been fully investigated. This SWMU did not result from any CHK activity at the site. Available information, as required by 40 CFR 270.14(d) is provided in this section.

L-1b(1) General Description of SWMU - Area West of Building B

A SWMU located in an area west of Building B and apparently consisting of buried paint cans was discovered during excavation for site improvements during the spring of 1992; a full investigation of this SWMU has not been completed. The SWMU, located approximately twenty feet west of the southwest corner of Building B, covers an area of approximately twenty square feet. Figure L.1, Location of SWMU - Area West of Building B, shows the location of this disposal area. The waste was tentatively identified as paint-related wastes.

Historical use of the SWMU located west of Building B is not definitively known. The property presently occupied by CHK was used for paint manufacturing from the mid 1940's to the mid 1970's. Reid Supply acquired the site in 1979, and HRI purchased the LESW facility in 1987. The on-site burial of these drums reportedly occurred prior to acquisition of the site by Reid Supply. CHK has not buried any waste in this SWMU, nor at any other location on the property.

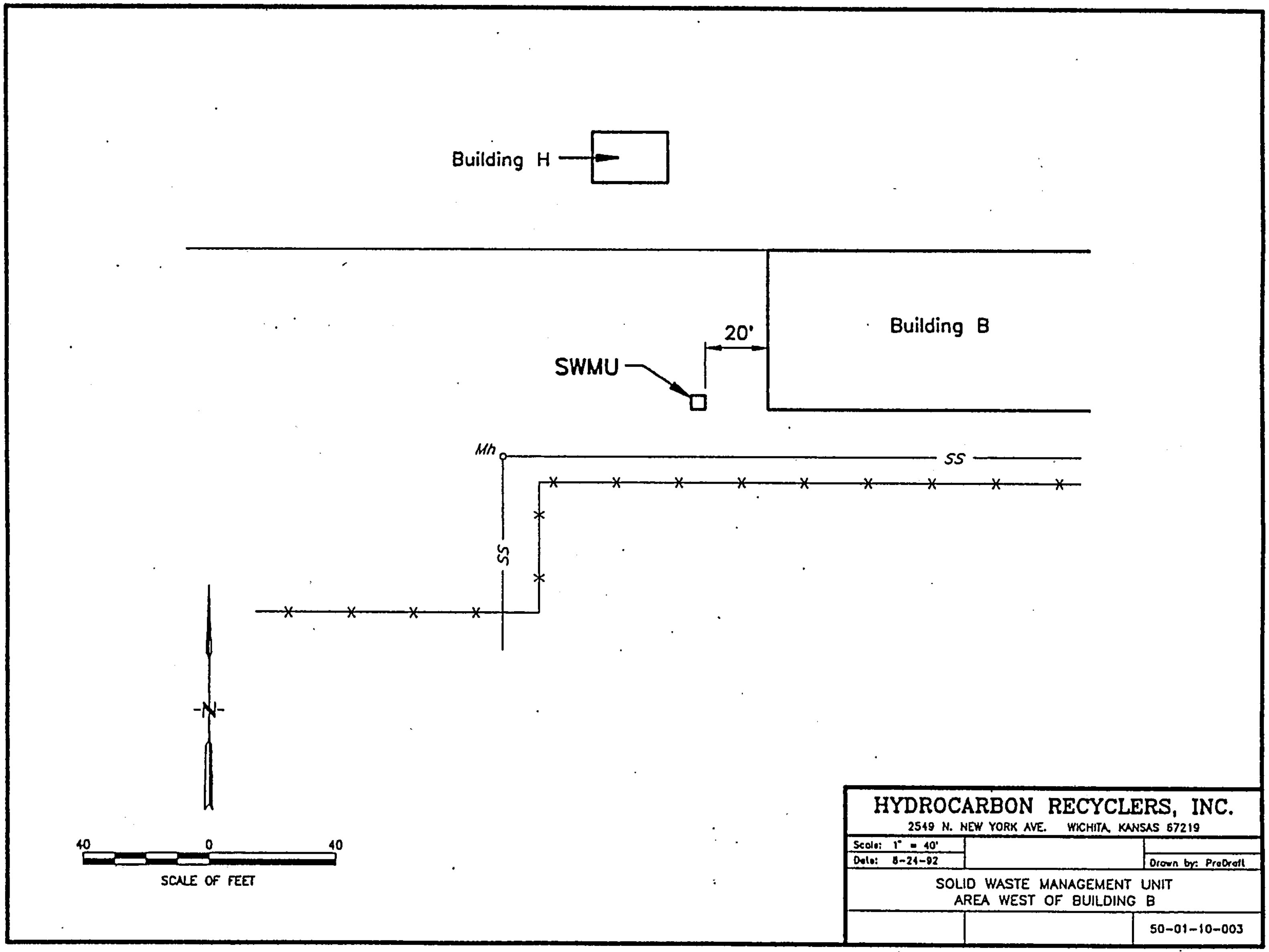

Figure L.1, Location of SWMU - Area West of Building B

L-1b(2) Releases from SWMU - Area West of Building B

CHK is not aware of any releases of waste from this SWMU. Therefore, the information required under 40 CFR 270.14(d)(2) is not applicable. The SWMU area west of Building B will be evaluated for potential releases as part of a corrective action program administered under the RCRA/HSWA permit.

L-1b(3) Sample and Analytical Data

Analytical data identified several hazardous constituents in wastes present in the SWMU area west of Building B. The contents of some paint cans and associated soil samples were analyzed. Analytical results are presented in Appendix L-A.

L-2 Information Pertaining to Releases: 40 CFR 270.14(d)(2)

CHK is not aware of any releases of hazardous waste or hazardous waste constituents from regulated units within the facility. Therefore, the information required under 40 CFR 270.14(d)(2) is not available (i.e., 40 CFR 270.14(d)(2) is not applicable).

A site inspection for the purpose of identifying potential SWMUs was completed by B. & V. Waste Science and Technology Corporation under contract Number 68-W9-0006 to United States Environmental Protection Agency (USEPA) Region VII in 1990. The Draft Preliminary Assessment Report - RCRA Facility Assessment, Clean Harbors Kansas, LLC, Wichita, Kansas is presented as an appendix to Section M, Other Regulated Units.

L-3 Superfund Activities

The CHK facility is located within the area identified as the 29th and Mead Comprehensive Environmental Response, Compensation, and Liability Act or "Superfund" site in the Wichita North Industrial District. Excerpts from the Draft Preliminary Assessment Report are presented as Appendix L-A, Draft 29th and Mead RI/FS Report - Excerpts.

Appendix L-A

Draft 29th and Mead RI/FS Report - Excerpts

Groundwater Technology, Inc., August 1991. *Draft Remedial Investigation Report of the 29th and Mead RI/FS*. Volume 1, prepared for Wichita North Industrial District, 60 pp.

Appendix L-A
Draft 29th and Mead RI/FS Report - Excerpts

Index of Included Material

Excerpts from:

Groundwater Technology, Inc., August 1991. *Draft Remedial Investigation Report of the 29th and Mead RI/FS*. Volume 1, prepared for Wichita North Industrial District, 60 pp.

GROUNDWATER TECHNOLOGY, INC.

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VOLUME I

DRAFT REMEDIAL INVESTIGATION REPORT FOR THE 29TH AND MEAD RI/FS

PREPARED FOR:

WICHITA NORTH INDUSTRIAL DISTRICT

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FOR:

MR. MICHAEL BRENOEL
VICE PRESIDENT
REGIONAL MANAGER

(CM\WNID\WNID-RI2.WND)
AUGUST 27, 1991

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EXECUTIVE SUMMARY

INTRODUCTION

In November 1989, Groundwater Technology, Inc., was contracted by the Potentially Responsible Parties within the Wichita North Industrial District to perform a Remedial Investigation and Feasibility Study at the 29th and Mead Comprehensive Environmental Response, Compensation, and Liability Act or "Superfund" Site in Wichita, Kansas. The Remedial Investigation as outlined in the Work Plan (HWS Technologies, 1989a) approved by the Kansas Department of Health and Environment and the U.S. Environmental Protection Agency, involved the performance of four major activities: 1) Field Investigation Data Acquisition Study, 2) Computer Modeling of the site, 3) Long Term Monitoring program, and 4) Risk Assessment.

The Field Investigation Data Acquisition Study was initiated on June 20, 1990, with field activities completed on July 20, 1990. Activities performed during the study included collection of soils at 49 locations, surface water at three locations, and groundwater at 13 locations. Collected samples were analyzed for volatile organic compounds and/or metals. The results of this activity were summarized in a report entitled "Field Investigation Data Acquisition Study," prepared by Groundwater Technology, Inc., and approved by the Kansas Department of Health and Environment on November 20, 1990.

The first round of sampling under the Long Term Monitoring program was initiated on March 22, 1991, and was completed on July 25, 1991. Field work for the program included installing 40 groundwater monitor wells, sampling groundwater for contaminants from 75 wells, and measuring fluid levels in 88 wells.

Computer modeling techniques were employed to assist interpretation of results and to support the baseline risk assessment. The modeling program CPS-PC™ was used to construct a groundwater gradient map for the site. The contaminant transport model MOC was used for the baseline risk assessment which is presented under separate cover.

SITE CONDITIONS INCLUDING REMEDIAL ACTIONS

The 29th and Mead Site is located in north Wichita, Kansas in an area bounded by 37th Street on the north, I-135 on the west, 17th Street on the south, and Broadway Street on the west. The site is an industrial area that has developed over the past 95 years. Industries present in the area have changed over the years. Current businesses include chemical supply companies, grain elevators, railroad facilities, metal fabricating companies, foundries, refineries, meat processing companies, recyclers/salvage facilities, roofing companies, concrete companies, food processing companies, gasoline retailers, and others.

Past investigations conducted throughout the site have shown the presence of soil and groundwater contamination.

Primary contaminants identified to be present include petroleum hydrocarbons including separate-phased liquids and chlorinated volatile organic compounds including trichloroethene, 1,1,1-trichloroethane and their degradation products.

Several remedial actions have been initiated or completed within or near the 29th and Mead Site. These include, but are not necessarily limited to:

- Soil vent system and hydraulic control and groundwater treatment systems at Evcon Industries, Inc. (formerly Coleman);
- Separate-phase hydrocarbon recovery at Coastal Derby Refining Company;
- Hydraulic control system at OHSE Meat Company;
- Hydraulic control system at Reid Supply, Inc.;
- Aboveground tank removal at the former Golden Rule Refinery, on property currently owned by Coastal Derby;
- Filling of sludge pit at the former Golden Rule Refinery, on property currently owned by Dolese Brothers Concrete;
- Drum removal at former solvent reclamation facility at the former Golden Rule Refinery site, on property currently owned by Wichita Brass and Aluminum;
- Pit cleanup at the former Barnsdahl Refinery, on property currently occupied by Kansas Metals, Inc.;

- Tank closure at the former Johns' Refinery, on property owned by Ava and Hazel Johns;

- Stabilization of Johns' Sludge Pond, on property currently owned by the City of Wichita;

- Tank pit cleanup or closures at Kansas Metals, Excel, Evcon, Dolese Brothers, and Universal Quik Mart.

STUDY AREA INVESTIGATION METHODOLOGY

The Remedial Investigation of the 29th and Mead Site involved the collection of soil, surface water, sediment, and groundwater samples. Collected samples were generally analyzed for volatile organic compounds, antimony, iron, and RCRA metals. Selected samples were analyzed for base/neutral and acid organic compounds, polynuclear aromatic hydrocarbons, and polychlorinated byphenyls.

The field investigation was completed in two stages. The first was the Field Investigation Data Acquisition Study which involved:

- Installation and sampling of 32 soil borings;

- Installation and sampling of two background soil borings;

- Installation and sampling of four borings at the locations of refiniery pits;

- Collection of seven surface soil samples;

- Collection of three surface water samples;

- Collection of four stream sediment samples; and

- Collection of samples from 13 existing monitor wells.

The second part of the field investigation was the initial activities of the Long Term Monitoring program. These activities included:

- Installation of 40 monitor wells;

- Collection of samples from 75 monitor wells for analysis of volatile organic compounds; and

- Fluid level measurements.

Standard procedures outlined in the approved Work Plan and Field Sampling Plan were followed during completion of the sampling and analysis activities of the Remedial Investigation.

PHYSICAL CHARACTERISTICS OF THE SITE

The 29th and Mead Site is located in Central Sedgwick County, Kansas in the Arkansas River Lowlands section of the Central Lowland Physiographic Province. The site is underlain by Pleistocene and Recent-Age alluvial clay, sand, and gravel which overlies shale of the Wellington Formation.

Permeable alluvium of the Arkansas River Valley is the primary source of usable groundwater in Sedgwick County. Within the study area, groundwater is used primarily for industrial purposes. The aquifer has transmissivities that range to 250,000 gallons per day per foot. The aquifer is under water table conditions and is as much as 30 feet thick at the site.

Groundwater flows generally from the north/northeast to south/southwest at the site. Natural gradient is locally affected by pumping wells in the aquifer at Evcon, OHSE Meats, Coastal Derby Refining, and others. Natural groundwater flow rates are estimated to range between about 0.20 feet per day to 1.15 feet per day.

RESULTS OF INVESTIGATION

<u>Soil Borings</u>

Benzene, toluene, trichlorethene, tetrachloroethene, and 1,1,1-trichloroethane were detected by field gas chromatography in one or more soil samples collected from 32 soil borings. Additional analyses were made by field photoionization detector and laboratory methods.

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Background Borings

Samples from two off-site background borings were analyzed. No volatile organic or base/neutral and acid extractable compounds were identified in these samples. Quantifiable concentrations of arsenic, barium, chromium, lead, and iron were detected. The detected concentrations did not exceed expected levels for native soils.

Borings Near Pits

Soil samples from four borings installed downgradient from pits at the former Golden Rule and Barnsdahl Refineries were analyzed. No sample contained any volatile organic compound. The metals antimony, arsenic, barium, cadmium, chromium, iron, lead, mercury, and silver were detected in samples from borings. Lead exceeded the maximum native soil range.

Chlorinated volatile organic compounds, including trichloroethene, dichloroethane, trans-1,2-dichloroethene, and vinyl chloride were quantified in groundwater samples from two borings. Only the vinyl chloride concentration in the groundwater sample from boring PB-1 exceeded the Kansas Action Level.

Benzene, toluene, ethylbenzene, or xylenes were quantified in groundwater samples from three borings. The benzene concentration at PB-1 exceeded the Kansas Action Level.

Groundwater samples collected from borings near pits contained antimony, arsenic, barium, iron, and lead. The concentrations of iron and barium exceeded Kansas Action Levels in one or more samples. Reported barium and iron concentrations reflect natural conditions for this part of Kansas.

Surface Soil Samples

Arsenic, barium, cadmium, chromium, iron, lead, selenium, and silver were detected in one or more of seven surface soil samples collected within the 29th and Mead Site. Only lead and selenium were detected at concentrations exceeding the maximum background concentrations. Base/neutral and acid extractable compounds were detected in one or more samples. Compounds detected were coal and petroleum constituents including anthracenes, fluoranthenes, pyrenes, and chrysene.

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At location B4-SS-1, duplicate samples were collected for analysis for polychlorinated bipenyls. The average concentration, as Arochlor 1260, was below the limits for unrestricted areas.

Analytical results for surface soil samples collected during this investigation do not confirm higher concentrations identified at the same sampling locations during the preliminary site assessment.

Surface Water Samples

Water samples were collected at three locations in surface streams at the site. Volatile organic compounds detected include 1,1,1-trichloroethane, trichloroethene, tetrachloroethene, dichloroethane, trans-1,2-dichloroethene, benzene, toluene, ethylbenzene, and xylenes. No sample contained any volatile organic compound at concentrations which exceeded Kansas Action Levels.

Barium and iron were the only metals quantified to be present in surface water samples. Kansas Action Levels were not exceeded for either metal.

Surface water samples were also analyzed for total organic carbon and total suspended solids.

Stream Sediment Samples

No volatile organic compound was detected in stream sediment samples. Arsenic, barium, cadmium, chromium, lead, and iron were detected in one or more samples. The reported concentration of the detected metals do not exceed the natural range.

Existing Well Samples

During the Field Investigation Data Acquisition Study, groundwater samples were collected from 13 of 16 wells. Three wells were not sampled due to the presence of separate-phase hydrocarbons. The samples were analyzed for the RCRA metals, plus antimony, and iron.

Arsenic, antimony, barium, lead, and iron were detected in groundwater samples. Kansas Action Levels were exceeded for arsenic in two wells, for barium in one well, and for iron in 13 wells. The occurence of barium and iron above the Kansas Action Level is not unusual in the area. The high arsenic condition is localized to the area south of 21st Street.

Well Samples from Long Term Monitoring Program

The Long Term Monitoring program involves 40 new wells installed during this investigation and 42 existing wells. The wells of this program are screened to allow sampling of the shallow and deep portions of the aquifer. Groundwater samples were collected in 75 of these wells during April, May, and July 1991. Five wells were not sampled due to the presence of separate-phase hydrocarbons and two wells were not sampled because they were dry. Collected samples were analyzed for volatile organic compounds.

Several chlorinated volatile organic compounds and petroleum hydrocarbon compounds were detected in samples from the Long Term Monitoring Program wells. The results of the analysis are summarized on Table E1 and are presented by aquifer depth (i.e., shallow and deep).

Deep Wells

Eleven of the 13 principal volatile organic compounds listed in Table E1 were detected in one or more of the 13 deep wells. Ethylbenzene and xylenes were not detected. Applicable Kansas Action Levels were exceeded for 9 of the 11 detected compounds (all except toluene and 1,2-dichloroethane). The compound most frequently exceeding the Kansas Action Level was trichloroethene; vinyl chloride, and 1,1,-dichloroethene were next. Exceeding the Kansas Action Level does not necessarily indicate that an unacceptable risk is posed. Reference should be made to the Risk Assessment which is submitted under separate cover.

Shallow Wells

All 13 volatile organic compounds of interest were detected in one or more wells. Trichloroethene was the most frequently detected compound and the compound which had the greatest number of wells exceeding the Kansas Action Level. Action Levels were exceeded in shallow wells for all compounds except toluene and ethylbenzene.

CONCLUSIONS

Data collected during this investigation were used to assist determination of the extent of contamination, the pathways of contaminant migration, and sources of contaminants at the 29th and Mead Site.

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The available data indicate the soil, sediment, and surface water contain metals, volatile organic compounds, polynuclear aromatic hydrocarbons, and polychlorinated biphenyls. The concentrations reported during this investigation do not confirm data generated during the preliminary assessment.

Groundwater at all depths investigated contain fuel components and chlorinated solvents and their degradation compounds at various locations at the Site. There are six identifiable plumes of the chlorinated solvents trichlorethene/tetrachloroethene and degradation compounds affecting all depths of the aquifer. At least 12 potential source areas of these compounds have been tentatively identified; two of these potential source areas are off site and upgradient of the Site. Three plumes of 1,1,1-trichloroethane and its degradation compounds affect all depths of the aquifer. Six potential source areas have been described; one is located off site.

Four fuel component plumes have been identified affecting the shallow zone of the aquifer. Three areas represent past or present petroleum refineries. The fourth plume is located south of 36th Street.

Three small carbon tetrachloride plumes have been identified affecting the shallow portions of the aquifer. Each plume has one potential source area.

1.3 SITE LOCATION AND DESCRIPTION

The 29th and Mead Site is located within the Central section of Sedgwick County, Kansas. The 29th and Mead Site is in the northern section of the City of Wichita and is generally bordered by 37th Street to the north, I-135 to the east, 17th Street to the south, and Broadway Street to the west (Figure 1). The 29th and Mead Site topography is generally flat with localized topographic relief created by scattered drainage pathways. The area, being industrialized, has developed such that surface water flows either to storm sewers, to canalways, to tributaries of Chisholm Creek, or to Chisholm Creek itself, and eventually to the Arkansas River.

The area geology consists of 10 to 15 feet of silt and clay underlain by non-cohesive deposits consisting of fine to very coarse gravel, fine to coarse sand and some silty clay. These alluvial deposits average 45 feet in thickness and form the primary aquifer in the area. A shale unit, the Wellington Formation, underlies the alluvial deposits and forms an aquitard under the area of investigation.

The groundwater depth in the area generally ranges from 10 to 18 feet below land surface. Seasonal fluctuations are expected to average 2 to 4 feet from a median groundwater depth of 14 feet. The general flow of groundwater is to the south.

1.4 PROJECT HEALTH AND SAFETY

An HSP was prepared by HWST in accordance with Occupational Safety and Health Administration (OSHA) Standards "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120). In addition, a comprehensive HSP incorporating safety requirements and environmental health and safety requirements was prepared for the project by Groundwater Technology. Both plans, presented in Deliverable Packet #3 (Groundwater Technology, 1990c), were employed during performance of the project field activities. The HSPs include the following:

1) Emergency first aid and routes of exposure;

2) Site history and description;

3) Site control and work zones;

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2.4 REID SUPPLY, INC.

2.4.1 SITE LOCATION/HISTORY

Reid Supply, Inc. (Reid Supply) is located at 2525 New York (see Figure 3, Map Code D). The property has been utilized as a storage, recycling, and collection point for liquid and solid hazardous waste material as well as bulk chemical repackaging and distribution since the 1970s. Hydrocarbon Recyclers, Inc., a subsidiary of USPCI purchased Reid Supply, Inc. In 1988.

2.4.2 PAST REMEDIATION ACTIVITIES

In July 1990, a non-contact cooling water industrial well was installed at Reid Supply. Pumping from the well was initiated in early January 1991. The well operates intermittently at 30 gpm. The discharge from the system is to the Wichita Sanitary Sewer System. Analysis of the discharged water has indicated methylene chloride, tetrachlorethane, trichloroethene, 1,2-dichloroethene, xylenes and toluene at concentrations of less than 100 ug/L per constituent.

2.5 WICHITA BRASS AND ALUMINUM FOUNDRY

2.5.1 SITE LOCATION/HISTORY

The Wichita Brass and Aluminum Foundry (WBA) is located at 412 East 29th Street (see Figure 3, Map Code E). The site occupies the southwest quarter of property formerly owned by Golden Rule Refinery, a petroleum refinery which was reportedly in operation from the early 1900's to approximately 1940. Mr. Mike Carter, the current president of WBA, reported that a portion of the property was leased by WBA from 1944 to 1946, and then was purchased by WBA. The remainder of the current WBA property was purchased in 1965.

A former sludge pit used by the refinery to dispose of by products was located in the northwest corner of the WBA property. The pit location is evident in an aerial photograph taken in 1951 but is not identified in a 1960 photograph.

According to the report, "Narrative Report for the Site Investigation of Wichita Brass and Aluminum, Wichita, Kansas" (prepared by the United States Geological Survey in 1985) and interviews with Mr. Carter, a solvent

4.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

4.1 REGIONAL GEOLOGY

The 29th and Mead Site is located in Central Sedgwick County. The majority of Sedgwick County occurs in the Arkansas River Lowlands section of the Central Lowland Physiographic Province (see Figure 10).

The geologic units which outcrop in Sedgwick County are of sedimentary origin and range in age from Permian to Recent (see Figure 11). The oldest formation present is the Wellington Formation (see Figure 12) of the Permian System which forms the bedrock under the eastern four-fifths of the county. The Wellington Formation consists of calcareous gray and blue shale containing several thin beds of argillaceous limestone, gypsum, and anhydride. The Ninnescah Shale, also of the Permian System, overlies the Wellington Formation and forms the bedrock surface in the western one-fifth of the county.

Unconsolidated deposits of clay, silt, sand, and gravel ranging from the Pliocene-Age Ogallala Formation to Recent Age unconformably overlie Permian-Age rocks (Figure 11). As shown on Figure 12, the contact between the Wellington Formation and the alluvium associated with the Arkansas River Valley generally trends north to south near the eastern edge of the 29th and Mead Site located east of the Arkansas River.

4.2 REGIONAL HYDROGEOLOGY

Permeable alluvium in the Arkansas River Valley is the primary source of usable groundwater in Sedgwick County. Domestic and stock wells in the Wellington Uplands Area, east of the Arkansas River Valley derive water from the Wellington Formation (see Figure 13). Groundwater from the Wellington Upland Area adjacent to the Arkansas River Valley discharges into the unconsolidated sediments of the Arkansas River Valley.

The distribution of transmissivity within the unconsolidated sediments of the Arkansas River Valley is illustrated in Figure 14. Values of transmissivity range from near zero at the boundaries of the Arkansas River Valley to 250,000 gallons per day per foot (gpd/ft) where the thickness of the unconsolidated sediments is at a maximum. The 29th and Mead Site lies within these alluvial sand deposits. Transmissivities between 40,000 and 100,000 gpd/ft are expected in the alluvium present on the Site.

4.3 SITE STRATIGRAPHY

The 29th and Mead Site stratigraphy was determined from drilling logs prepared during installation of soil borings and monitor wells performed as part of this project and from available literature for the area. The stratigraphy at the 29th and Mead Site is characterized by the following in ascending order from oldest to youngest (see Figure 15 for east/west gelogic cross section).

- Medium to dark-gray, weathered shale bedrock of the Wellington Formation.
- Unconsolidated, light brown alluvial sand lies above the shale bedrock with a thickness of approximately 30 feet. This lithologic unit grades upward from a coarse-grained sand with traces of gravel to a fine to medium-grained sand.
- Alluvial clay with a fine sand lies above the sand unit and extends to the surface, approximate average thickness is 10 feet.

A top of bedrock contour map was constructed using CPS-PC™ computer modeling software (see Figure 16).

4.4 SITE HYDROGEOLOGY

The water bearing unit at the 29th and Mead Site consists of the unconsolidated alluvial sediments of the Arkansas River Valley which overlie shale of the Wellington Formation. This unit consists of sandy clay, clayey sand and sand. Water levels (see Table 3) measured in the on-site wells indicates that groundwater exists under unconfined conditions at the site.

The elevation survey data for the existing on-site monitor wells and new monitor wells screened at the water table (Table 2) were entered into CPS-PC™ model software to construct a groundwater gradient map (Figure 17). As depicted in Figure 17, depressions in the water table show the influence of Evcon recovery well RW-1 (near 37th Street and Santa Fe), the Evcon north and south industrial wells (between 33rd Street and 30th Street on Mead), and the OSHE Meat Company industrial well (between 25th Street and 21st Street near Broadway). The well with the greatest influence appears to be the OSHE Meat Company industrial well. The map suggests that there may be active pumping wells in the area around wells WND-5 (Block 10) and

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GLM-14 (Block 7), however, the configuration shown is a function of measured water levels and the mathematical algorithms used by CPS modeling program.

The general groundwater flow across the site is from north/northeast to south/southwest. As described above, the pumping wells have an influence on the local groundwater flow direction and gradient within the 29th and Mead Site.

4.4.1 GRAIN SIZE ANALYSIS

4.4.1.1 Shallow Part of the Aquifer

Samples were collected during the drilling of the 32 soil borings as described in Section 3.1.1 at depths ranging from one to five feet below the water table for grain size analysis to represent the shallow part of the aquifer beneath the 29th and Mead Site. The samples were analyzed by Engineering Testing Company The reports of grain size testing are included in Appendix G.

During installation of monitor wells during the long term monitoring program, soil samples were collected from the shallow part of the aquifer in WND-24 (Block 2), WND-22 (Block 19), WND-26 (Block 8), and submitted to Layne Western for grain size analysis. Results of the grain size analysis are presented in Appendix G. The grain size analyses indicate that the predominant aquifer grain size in the upper portion of the aquifer is very fine to very coarse sand as defined by the Wentworth Scale.

Utilizing the plots of representative grain size analyses, hydraulic conductivity (k) was estimated based on the square of the grain size, in millimeters, at which 90 percent of the sample is retained on a screen. The hydraulic conductivity of the shallow part of the aquifer was estimated to range from 0.016 centimeters per second (cm/s) to 0.068 cm/s. This range is consistent with expected values based on aquifer transmissivity.

The velocity of groundwater flow for the shallow part of the aquifer can be determined by multiplying the hydraulic conductivity and hydraulic gradient, divided by the effective porosity of the formation (Freeze and Cherry, 1979). For this determination, 20 percent effective porosity was assumed and used (Freeze and Cherry, 1979). The hydraulic gradient was calculated from the groundwater gradient map (Figure 17) for the area bounded by 29th Street, 25th Street, Ohio Street, and I-135. This area appears least effected by the influence of pumping wells in the 29th and Mead area. The uneffected hydraulic gradient is calculated to be 0.0012 feet per foot. Based on the parameters outlined above, the groundwater flow velocity in the upper part of the aquifer ranges from 0.27 ft/day to 1.16 ft/day.

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4.4.1.2 Deep Part of the Aquifer

Samples were collected at depths ranging from one to five feet above bedrock for grain size analysis during installation of monitor wells WND-22, WND-24, and WND-26 to represent the deep part of the aquifer beneath the 29th and Mead Site. Samples were submitted to Layne Western for analysis. Results of the grain size analysis are presented in Appendix G. These analyses identify the predominant aquifer grain size to be fine to very coarse sand as defined by the Wentworth Scale.

Utilizing the the grain-size plots, hydraulic conductivity (k) was estimated based on the square of the grain size, in millimeters, at which 90 percent of the sample is retained on a screen. The hydraulic conductivity of the deep part of the aquifer was estimated to range from 0.058 cm/s to 0.068 cm/s. This range is consistent with expected values based on aquifer transmissivity.

The velocity of groundwater flow for the deep part of the aquifer was determined by multiplying the hydraulic conductivity and hydraulic gradient, divided by the effective porosity of the formation (Freeze and Cherry, 1979). For this determination, 25 percent effective porosity was used as representative for sands (Freeze and Cherry, 1979) in the lower part of the aquifer. The unaffected hydraulic gradient was assumed to be the same as the water table gradient in the area bounded by 29th Street, 25th Street, Ohio Street, and I-135.

The hydraulic gradient for the deep part of the aquifer is assumed to be 0.0012 feet per foot. Based upon the parameters outlined above, the groundwater flow velocity in the lower part of the aquifer ranges from 0.79 ft/day to 0.93 ft/day.

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List of Referenced Drawings

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Drawing 50-57-10-001, Miscellaneous Unit Locations
Drawing D-35-52-800, 55 Gallon Drum Scraper
Drawing D-43-10-6-100, Motor Location and Specification
Drawing PD 12/3/91, 1129 Gallon Dispersing Tank
Drawing DL34055, 40/50/60 VSM 18 Disperser; FCF-Bowers
Drawing Barrel Dump Assembly; PD 1/25/91
Drawing 665300-4-W404F, P&ID Process Areas, FD
Drawing D990043, Triple Rinse - HRI; BRI, Inc.

Acronym Table

Clean Harbors Kansas, LLC (CHK)
Title 40 of the Code of Federal Regulations (40 CFR)
Occupational Safety and Health Administration (OHSA)
National Fire Protection Association (NFPA)
Waste Analysis Plan (WAP)

M-1 Introduction

This section describes several waste management units at Clean Harbors Kansas, LLC (CHK) which have not been classified by state or federal regulatory agencies as tanks or containers for the purpose of regulation under Title 40 of the Code of Federal Regulations (40 CFR) Part 264. These units are the Drum Scraper Unit, the Drum Washing Unit, and The Dispersing Unit which is also permitted as a tank (V-26) in Section E, Tank Systems. All of these units have been classified as miscellaneous units regulated under 40 CFR 264 Subpart X by Region 7 of the U.S. Environmental Protection Agency. Each of these units may be used to physically or chemically alter hazardous wastes managed at CHK. Their specific locations are shown on Figure M.1, Miscellaneous Unit Locations (Drawing 50-57-10-001, Miscellaneous Unit Locations). This section will address the regulations for miscellaneous units as they apply to each unit listed above.

M-1a Wastes Managed in Miscellaneous Units

Miscellaneous units on site are utilized for regulated and non-regulated waste management. Any regulated RCRA wastes identified on the facility Part A application (presented in Section A of this application) may be managed in any miscellaneous unit on site so long as the waste is compatible with equipment or concurrently managed wastes.

Facility waste management practices have been developed to prevent the perpetuation of waste code(s) managed in tank systems and miscellaneous units. The waste code(s) applicable to a given wastestream processed in a unit is(are) retained for a specified processing time interval or processing volume; the waste code(s) associated with a given waste is(are) dropped from documentation after that specified time interval or process volume is elapsed. Specific practices for tanks, miscellaneous units, and piping are outlined below.

- Tanks - After removal of a listed or characteristic waste, tanks will be cleaned by rinsing, scraping, brushing, or other physical method until deemed visually clean. Waste codes of previously managed wastes will not be carried on subsequent waste streams managed.

- Miscellaneous Units - The three unit volumes processed through the unit after completion of management of a listed or characteristic waste will be considered as carrying the same listed codes, or characteristic codes (unless tested and shown otherwise). Waste codes will be dropped from waste streams managed subsequent to these three unit volumes. The volumes of each miscellaneous unit are listed below:

Drum Scraper	72 gallons
Drum Washer	1173 gallons
Disperser	0 gallons (accounted for with tank storage volumes).

- Piping - The one unit volume processed through piping after completion of management of a listed or characteristic waste will be considered as carrying the same listed codes, or characteristic codes (unless tested and shown otherwise). Waste codes will be dropped from waste streams managed subsequent to this one unit volume.

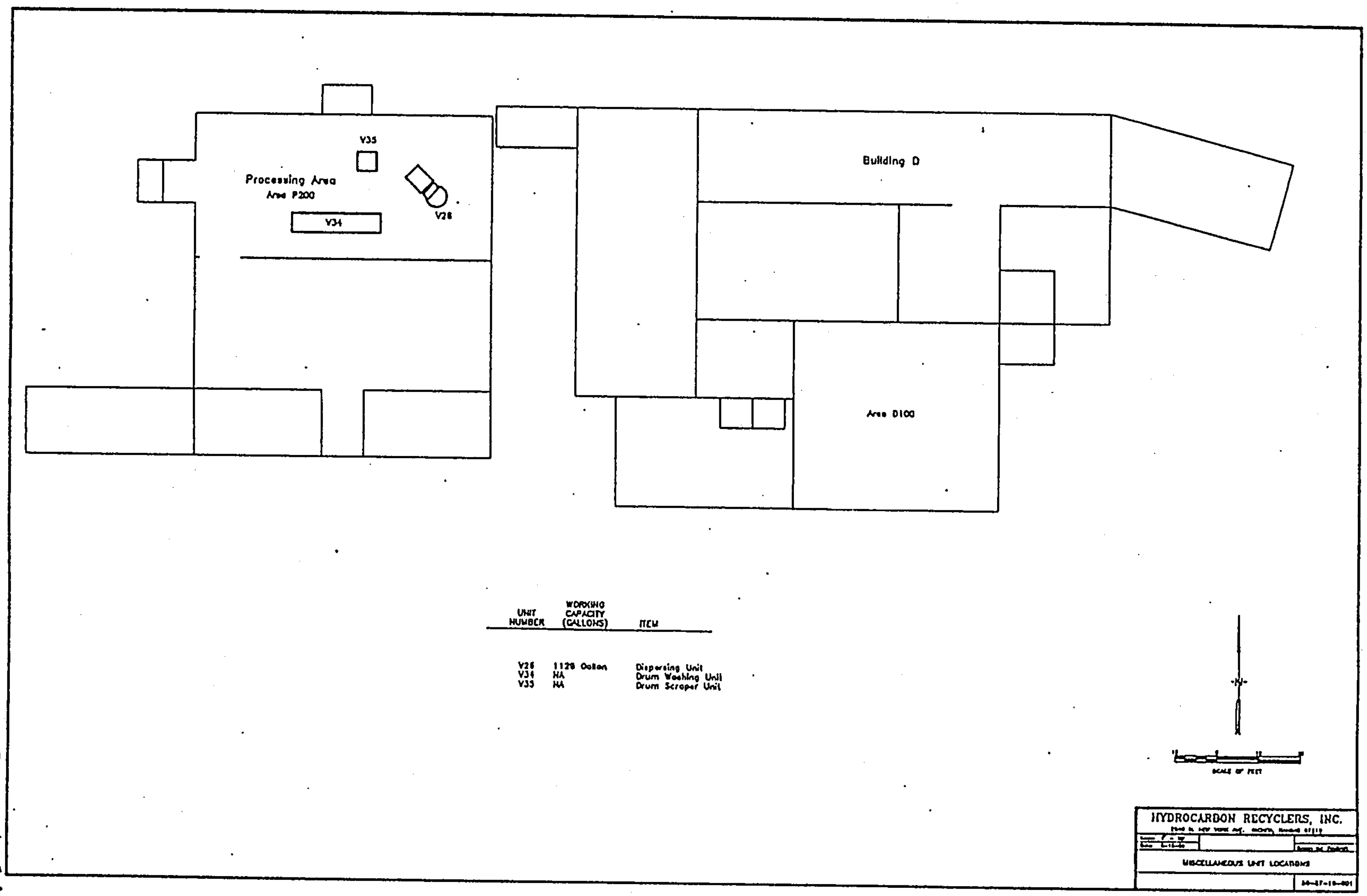


Figure M.1. Miscellaneous Unit Locations

M-2 Unit Descriptions

M-2a Shredder and Granulator Units

Note: the Shredder and Granulator units were closed in August, 1998.

M-2b Drum Scraper Unit

M-2b(1) Purpose

The Drum Scraper Unit is used to enhance the removal of solid, viscous, and/or sticky materials from containers such as 55 gallon drums. Before a container is placed in the Drum Scraper Unit, the top of the container is removed, and any free liquid standing on top of the drummed waste may be pumped out. When the container containing waste is placed in the unit, a cylinder extends down from the unit into the container. A rotating metal blade then extends down inside the cylinder and into the waste, where it cuts up the waste so it can be dumped out. Once the cutting is finished the cylinder and blade assembly is raised from the container, the container is immediately put into the dumper, and the contents are dumped into the Dispersing Unit; alternatively, the top is placed back on the container and the container is moved by conveyor to the Dispersing Unit or to another processing area.

The Drum Scraping Unit is constructed primarily of carbon steel and is located in the Process Area at CHK as shown in Figure M.1.

Figure M.5, 55 Gallon Drum Scraper (Drawing D-35-52-800, 55 Gallon Drum Scraper) and Figure M.6, Motor Location and Specification Drawing D-43-10-6-100, Motor Location and Specification) show the dimensions and configuration of the unit.

The regulations in 40 CFR 264 Subparts I through O do not apply specifically to the Drum Scraping Unit; however, this unit is located in a container management area and has secondary containment which meets the requirements of 40 CFR 264 Subpart I, Use and Management of Containers.

M-2b(2) Drum Scraper Unit compliance with standards for emissions or releases: 264.601 and 264.602

M-2b(2)(a) Prevention of releases to the subsurface environment or groundwater: 264.601 (a)

Releases of waste from the Drum Scraper Unit to the subsurface or groundwater are extremely unlikely for these reasons.

(1) The waste processed by the Drum Scraper Unit is predominantly solid, and has had most free liquids removed.

(2) The Drum Scraper Unit is located in a secondary containment area which meets the requirements of 40 CFR 264 Subparts I and J. The containment has sufficient volume to contain a spill of the entire contents of a container within the unit (the unit has no waste holding capacity of its own), and is coated with a material that is sufficiently impervious to the wastes processed in the unit. Secondary containment volume calculations are included in appendices of Section D, Use and Management of Containers, and Section E, Tank Systems.

(3) Various aspects of the condition of this unit and of the containment area are inspected each operating day or week, as described in Section F, Inspection Plan. Leaks or spills that might be associated with this unit are cleaned up within 24 hours of their discovery, or as soon as it is safe and practicable.

(4) The unit is located inside a containment unit with a large area, and is physically separated and removed from any surface water, wetlands, or soil. The location of the facility relative to nearby bodies of water is shown in the topographic map in Section B, Facility Description.

(5) CHK maintains a Contingency/Emergency Plan for use in situations such as a major spill, a fire, or an explosion. This plan incorporates measures to mitigate releases to the

environment from the unit, and to protect human health and the environment from such releases.

M-2b(2)(b) <u>Prevention of releases to surface water, wetlands or soil</u>: 264.601(b)

Releases of waste from the Drum Scraper Unit to surface water, wetlands, or soil are extremely unlikely for the reasons stated in M-2b(2)(a).

M-2b(2)(c) <u>Prevention of releases to the air</u>: 264.601(c)

The design and operation of the Drum Scraper Unit controls releases of waste constituents to the air from the unit to prevent releases which may adversely affect human health or the environment. The wastes processed in this unit are generally thick, viscous liquids or solids contaminated with organic solvents. These solvents could potentially volatilize during the scraping process. While the container is being scraped a cylinder extends down into the container from the unit, and houses the metal boring and scraping assembly. The cylinder fits snugly inside the container and is closed at the top to minimize emissions. Vapors released from the containers during the time that they are opened and the cylinder is not inside them would be nominal since the containers are opened just before they are processed in the scraper, and are reclosed or are dumped right after they are scraped.

The only people who could potentially be exposed to these very small quantities of vapors are the CHK employees who work in the immediate area, and they are protected from exposure by the protective clothing and equipment that they wear. The potential for contaminants reaching persons outside the Processing Area or outside the facility, if any such potential exists at all, is much lower due to the emission controls discussed above. An exposure study was performed in August of 1991 at CHK to determine the potential for exposure of workers in the Processing Area (where the Drum Scraper Unit is located) to organic solvent vapors. The air in this area was monitored for six different organic compounds. Of these six compounds only three were detected, and they were detected in trace quantities that were well below the Occupational Safety and Health Administration (OSHA) permissible exposure levels for unprotected workers. A summary of the results of this study is contained in Appendix M-C.

M-2b(2)(d) Monitoring and Inspections: 264.602

The Drum Scraper Unit, and the surrounding area will be visually inspected each operating day for evidence of leaks or spills in accordance with the facility inspection plan described in Section F, Inspection Plan. The secondary containment system will also be inspected each operating day for evidence of cracks or breaches of containment in accordance with this inspection plan.

M-2c **Dryer** Note: the Dryer Unit was closed in September, 1996.

M-2d Dispersing Unit

M-2d(1) Purpose

The Dispersing Unit is used to blend various wastes and solvents into a fuel, to facilitate storage or transportation, or for other waste management purposes. It consists mainly of a tank with a mixing blade inside, attached to a container dumping assembly. These components are shown in Figure M.8, 1129 Gallon Dispersing Tank; Figure M.9, 40/50/60 VSM 18 Disperser; and Figure M.10, Barrel Dump Assembly; in Appendix M-A (Drawing PD

12/3/91, 1129 Gallon Dispersing Tank; Drawing DL34055, 40/50/60 VSM 18 Disperser; FCF-Bowers; and Drawing Barrel Dump Assembly; PD 1/25/91). The operation of Dispersing Unit is described below.

Wastes and other materials are placed in the Dispersing Unit Tank by pumping from tanks, containers, or trucks; or by dumping from containers using the container dumper. The container dumper automatically tips the container so that the loose contents pour in a chute and into the Dispersing Unit Tank. The dumper also has the capability to spray high pressure solvent, (e.g. diesel fuel), into the container while it is tipped in order to enhance removal of the waste. The material in the Dispersing Unit Tank is blended and mixed by a rotating mixing blade and, if necessary, by circulating the material through a gear pump, and/or a small shredding device. The blended material is then pumped to tanks or containers for further blending, for transportation, and/or for storage. Figure M.11. P&ID Process Areas (Drawing 665300-4-W404F, P&ID Process Areas, FD) schematically shows the Dispersing Unit and its associated piping. Further information on the Dispersing Unit hardware may be found in Appendix M-E, Operating Manuals: Dispersing Unit.

Among the materials processed in the Dispersing Unit are solids and liquids such as waste solvents and paint.

The Dispersing Unit is constructed primarily of carbon steel, and the dimensions of its components are shown in Figures M.8, M.9, and M.10. The unit is located in the Process Area at CHK as illustrated in Figure M.1.

M-2d(2) Dispersing Unit compliance with applicable hazardous waste treatment and storage standards

The major component of the Dispersing Unit is a tank in which hazardous waste and other materials are mixed, so 40 CFR 264 Subpart J standards for treatment and storage of hazardous waste in tanks apply to the Dispersing Unit. The Dispersing Unit's compliance with hazardous waste tank regulations is discussed below.

M-2d(2)(a) Description of Tank System: 270.16(a), (b), and (e), 264.192 (a)

The purpose of the following discussion is to describe the operation of the Dispersing Unit Tank at CHK. A certified assessment of this tank by an independent, qualified, registered, professional engineer as required by 40 CFR 264.192(a) is presented in Appendix E-A, Tank System Assessments, of Section E, Tank Systems. The tank system assessments include secondary containment calculations and certifications, compatibility statements, and tank assessment field notes. The Dispersing Unit Tank drawing is provided in Appendix E-B of Section E.

Piping and instrumentation diagrams, and process flow diagrams for the Dispersing Unit are presented in Section N, Air Emissions. Figure M-8 shows the dimensions of the Dispersing Unit Tank. The working capacity of the Dispersing Unit Tank, V-26, is 1,129 gallons.

The Dispersing Unit is located on top of a concrete secondary containment pad that is sloped to a collection area. This design ensures that the external shell of the tank and any external metal components of the tank system will not be in contact with soil or standing water; therefore, the requirements of 40 CFR 264.192 (a)(3) (corrosion expert assessment) are not applicable. As required by 40 CFR 264.193 (c)(4), any accumulated precipitation that gathers in the secondary containment system after a storm is removed within twenty-four (24) hours of detection, or in as timely a manner as possible.

M-2d(2)(b) Operational Practices: 270.16(c), (i), (j), 264.194, 264.198, 264.199, 264.195

The following information is supplied to meet the specific requirements of regulations promulgated under RCRA regarding tank operating practices.

M-2d(2)(b)(1) General Operating Requirements: 270.16(i), 264.194

Any material that could cause the Dispersing Unit Tank, or its ancillary equipment or secondary containment system to fail (i.e., rupture, leak, etc.) will not be designated for management in the Dispersing Unit tank system. Assessments for compatibilities of wastes with the Dispersing Unit tank system materials are presented in Appendix E-A of Section E, Tank Systems.

CHK will use the appropriate controls and practices to prevent spills and overflows from the Dispersing Unit Tank. Spill prevention controls include check valves, dry disconnect couplings, and secondary containment around the unit. Overfill prevention controls include level sensing devices, high level alarms, automatic shutoff of the drum dumper, visual inspections during transfer, and maintenance of adequate freeboard. The Dispersing Unit has a manual gauging port for overflow protection.

M-2d(2)(b)(2) Description of Feed Systems, Safety Cutoff, Bypass Systems, and Pressure Controls: 270.16 (c)

A description of the feed systems, safety cutoff, bypass systems, and pressure controls is provided below for the Dispersing Unit.

M-2d(2)(b)(2)(a) Feed Systems and Safety Cutoff

Level detection systems on the Dispersing Unit Tank are checked each operating day material transfer to or from this tank takes place. Check valves are present as needed within the system to prevent reversal of flow.

M-2d(2)(b)(2)(b) Pressure Controls

Pressure controls are not necessary for the Dispersing Unit tank since it is an atmospheric tank.

M-2d(2)(b)(3) Special Requirements for Handling Incompatible, Ignitable, or Reactive Waste: 270.16 (j), 264.198, 264.199

Wastes exhibiting the characteristic of reactivity will not be placed in the Dispersing Unit. The Dispersing Unit will comply with the requirements for the maintenance of protective distances between the waste management area and any adjoining property lines as outlined in the National Fire Protection Association (NFPA) "Flammable and Combustible Liquids Code". Smoking will not be permitted in the vicinity of the Dispersing Unit.

The procedures outlined in the Waste Analysis Plan (WAP), found in Section C, will be followed to ensure that no incompatible wastes or incompatible waste and materials are placed in the Dispersing Unit. Additionally, hazardous waste will not be placed in the unit if it previously held an incompatible waste or material unless compliance with 40 CFR 264.17(b) is demonstrated. Compliance with 40 CFR 264.17(b) will be documented as described in Section J, Closure Plan. More discussion on procedures for handling ignitable, incompatible, or reactive waste is contained in Section G, Procedures to Prevent Hazards.

M-2d(2)(b)(4) Inspections: 264.195

The inspection schedule for tank systems, including the Dispersing Unit tank system, is provided in Section F, Inspection Plan. CHK will document the results of these inspections in the operating record to be kept at the facility.

M-2d(2)(b)(5) Contingency Measures: 264.196

The procedures for responding to a situation where leaking or unfit-for-use tank systems are discovered is discussed in the Section H, Contingency/Emergency Plan. If a leak or spill occurs from the Dispersing Unit Tank then CHK will comply with the applicable requirements listed in 40 CFR 264.196.

M-2d(2)(c) Containment and Detection of Releases: 264.193, 270.16(g)

The secondary containment system for the Dispersing Unit Tank has been designed, installed, and is operated to prevent migration of wastes or accumulated liquid to the environment. The containment system provides for the detection of and collection of releases and accumulated liquids; accumulated liquids will be removed from containment systems within 24 hours or as soon as is practicable.

The secondary containment system for the Dispersing Unit Tank consists of a concrete slab surrounded with a concrete dike. The containment system for the Process Area is sloped toward the center to facilitate detection and removal of any potential released material or other liquid. Accumulated liquids will be removed and managed appropriately. The secondary containment system has been designed to have sufficient structural strength and thickness to minimize the potential of failure owing to pressure gradients, physical contact with waste, climatic conditions, or the stress of daily operations. Additionally, the foundations will provide resistance to pressure gradients above and below the system and will minimize the potential for failure due to settlement, compression, or uplift (see tank certifications presented in Appendix E-A of Section E, Tank Systems).

The Dispersing Unit containment area is coated with a sealant to protect against chemical attack of the concrete surface. The containment area has been designed to completely underlay the tank, and to cover surrounding earth most likely to come into contact with a release of waste (i.e., capable of preventing lateral and vertical migration).

The Dispersing Unit containment area is inspected each operating day for the presence of liquids. Inspections will enable facility personnel to determine if failure of the tank or the containment structure has occurred. The Dispersing Unit Tank is elevated and is visually inspected for leaks.

Accumulated liquids collected in the secondary containment system will be removed within 24 hours or as soon as practical (e.g., by using vacuum truck, portable pump, etc.), and managed according to the procedures outlined in the Waste Analysis Plan in Section C, Waste Characterization.

Ancillary equipment (e.g., pumps) associated with the Dispersing Unit tank system has been located within the tank systems' secondary containment areas, within secondary containment areas for pumps, or within the containment area of an associated loading or unloading area. Therefore, sufficient secondary containment is provided for the ancillary equipment. All piping utilized for transfer of hazardous waste to and from the Dispersing Unit is above ground, welded, and inspected each operating day for leaks or damage.

Drawings that provide details for the secondary containment areas are provided in Section D, Use and Management of Containers, Appendix D-A. The secondary containment system for the Processing Area has been designed to provide sufficient capacity to contain 100 percent of the capacity of the largest tank within its boundaries as well as enough containment volume to contain the amount of precipitation that would normally blow under the roof during a twenty-four hour, twenty-five year rainfall event. Also, each containment area has been designed and is operated in a manner to prevent run-on. The Dispersing Unit is located under a roof with attached walls that come partially to the ground to reduce precipitation ingress. The secondary containment capacity calculations for tanks in the Processing Area are provided in Appendix E-A of Section E, Tank Systems; the results of these calculations show the secondary containment capacity in the Processing Area is greater than required for the tanks in the area, including the Dispersing Unit Tank.

M-2d(3) <u>Dispersing Unit compliance with standards for emissions or releases</u>: 264.601 and 264.602 standards

M-2d(3)(a) <u>Prevention of releases to the subsurface environment or groundwater</u>: 264.601 (a)

Releases of waste from the Dispersing Unit to the subsurface or groundwater are extremely unlikely for these reasons.

(1) The Dispersing Unit is located in a secondary containment area which meets the requirements of 40 CFR 264 Subparts I and J. The containment has sufficient volume to contain a spill of the entire contents of the unit, and is coated with

a material that is compatible with the wastes processed in the unit. Secondary containment volume calculations are included in appendices of Section D, Use and Management of Containers, and Section E, Tank Systems.

(2) Various aspects of the condition of this unit and of the containment area are inspected each operating day or week, as described in Section F, Inspection Plan. Leaks or spills that might be associated with this unit are cleaned up within 24 hours of their discovery, or as soon as it is safe and practicable.

(3) The unit is located inside a large containment area, and is physically separated and removed from any direct contact with surface water, wetlands, or soil. The location of the facility relative to nearby bodies of water is shown in the topographic map in Section B, Facility Description.

(4) CHK maintains a Contingency/Emergency Plan for use in situations such as a major spill, a fire, or an explosion. This plan incorporates measures to mitigate releases to the environment, and to protect human health and the environment from such releases.

M-2d(3)(b) **<u>Prevention of releases to surface water, wetlands or soil</u>: 264.601(b)**

Releases of waste from the Dispersing Unit to surface water, wetlands, or soil are extremely unlikely for the reasons stated in M-2d(3)(a).

M-2d(3)(c) **<u>Prevention of releases to the air</u>: 264.601(c)**

The design and operation of the Dispersing Unit controls releases of waste constituents to the air from the unit to prevent releases which may adversely affect human health or the environment.

The wastes processed in the Dispersing Unit often contain organic solvents. These solvents could potentially volatilize while being mixed in the unit. The Dispersing Unit Tank is covered and can be closed to prevent release of volatile organic vapors when material is not being added or removed. A flexible seal closes the opening where the shaft for the mixing blade extends down into the tank. A second opening in the top of the tank through which the chute from the container dumper extends, can be closed by a knife-gate valve when material is not being added to the disperser tank.

The persons most likely to be exposed to potential air contaminants from this unit are CHK employees who work in the vicinity of the Dispersing Unit. The potential for contaminants reaching persons outside this area or outside the facility, if any such potential exists at all, is significantly reduced by the unit's emission controls. An exposure study was performed in August of 1991 at CHK to determine the potential for exposure of workers in the Processing Area (where the Dispersing Unit is located) to organic solvent vapors. The air in this area was monitored for six different organic compounds. Of these six compounds only three were detected, and they were detected in trace quantities that were well below the OSHA permissible exposure levels for unprotected workers. A summary of this study is contained in Appendix M-C, Clean Harbors Air Monitoring Data.

M-2d(3)(d) Monitoring and Inspections: 264.602

The Dispersing Unit and the surrounding area will be visually inspected each operating day for evidence of leaks or spills in accordance with the facility inspection plan described in Section F, Inspection Plan. The secondary containment system will also be inspected each operating day for evidence of cracks or breaches of containment in accordance with this inspection plan.

M-2e Drum Washing Unit

M-2e(1) Purpose

The Drum Washing Unit is used to wash residues from emptied containers. Some of these containers will not meet the criterion for empty containers stated in 40 CFR 261.7. The operation of the Drum Washing Unit is described below.

Containers which have had their contents removed are placed right side up on a conveyor which leads to the Drum Washing Unit. When the containers enter the unit they are lifted up and placed on their side, and then inverted. A chain then pulls the container to the first wash station where a wash wand extends up into the container and sprays washing fluid at high pressure to remove residues in the container. The wash fluid and residues drain out of the container into the wash fluid reservoir. The wash wand then retracts and the container is pulled by a chain to a second station where the washing process is repeated. The container is then pulled to a third station where a wand extends in to the container and it is washed again, this time with the container tipped slightly to allow the fluid to more completely drain out. The container is then set upright by the unit and it is placed on a conveyor which carries it away from the washer.

Containers of various shapes and sizes are processed through the Drum Washing Unit. Most of the hazardous waste containers entering the washer meet the definition of empty as defined in 40 CFR 261.7 with the possible exception of those containers which held acutely hazardous waste. The Drum Washing Unit is designed to further empty all containers so they will, if they do not already, meet the definition of empty as defined in 40 CFR 261.7. Thus, after they have been washed in the Drum Washing Unit nearly all of the containers are exempt from hazardous waste regulations. The drums which are washed are typically either disposed of, reused, or reconditioned for reuse. Drums may be crushed before they are shipped off-site for disposal.

The Drum Washing Unit is constructed primarily of carbon steel and is located in the Processing Area at CHK as shown in Figure M.1 in Appendix M-A. Figure M.12, Triple Rinse - HRI (Drawing D990043, Triple Rinse - HRI; BRI, Inc.) shows the dimensions and the configuration of the unit.

M-2e(2) <u>Drum Washing Unit compliance with standards for emissions or releases</u>: 264.601 and 264.602

M-2e(2)(a) <u>Prevention of releases to the subsurface environment or groundwater</u>: 264.601 (a)

Releases of waste from the Drum Washing Unit to the subsurface or groundwater are extremely unlikely for these reasons.

(1) The Drum Washing Unit is located in a secondary containment area which meets the requirements of 40 CFR 264 Subparts I and J. The containment has sufficient volume to contain a spill of the entire contents of the unit, and is coated with a material that is compatible with the wastes processed in the unit. Secondary containment volume calculations are included in appendices of Section D, Use and Management of Containers, and Section E, Tank Systems.

(2) Various aspects of the condition of this unit and of the containment area are inspected each operating day or week, as described in Section F, Inspection Plan. Leaks or spills that might be associated with this unit are cleaned up within 24 hours of their discovery, or as soon as it is safe and practicable.

(3) The unit is located inside a large containment area, and is physically separated and removed from any surface water,

wetlands, or soil. The location of the facility relative to nearby bodies of water is shown in the topographic map in Section B, Facility Description.

(4) CHK maintains a Contingency/Emergency Plan for use in situations such as a major spill, a fire, or an explosion. This plan incorporates measures to mitigate releases to the environment, and to protect human health and the environment from such releases.

M-2e(2)(b) <u>Prevention of releases to surface water, wetlands or soil</u>: 264.601(b)

Releases of waste from the Drum Washing Unit to surface water, wetlands, or soil are extremely unlikely for the reasons stated in M-2e(2)(a).

M-2e(2)(c) <u>Prevention of releases to the air</u>: 264.601(c)

The design and operation of the Drum Washer Unit controls releases of waste constituents to the air from the unit to prevent releases which may adversely affect human health or the environment. The containers processed in the Drum Washing Unit have been processed to remove the bulk of the waste they contained. Thus, the containers have only small quantities of waste remaining in them that can volatilize into the air.

Furthermore, the washing apparatus is enclosed except for openings on either end for the containers to enter and exit. Also, the washing solvent used is typically diesel which is relatively non-volatile and therefore is unlikely to emit significant quantities of vapors. CHK is investigating methods to further reduce the potential for releases of airborne contaminants from the washer.

The persons most likely to be exposed to potential air contaminants from this unit are CHK employees who work in the vicinity of the Drum Washing Unit (i.e., in the Processing Area). The potential for contaminants reaching persons outside this area or outside the facility, if any such potential exists at all, is much lower.

M-2e(2)(d) Monitoring and Inspections: 264.602

The Drum Washing Unit and the surrounding area will be visually inspected each operating day for evidence of leaks or spills in accordance with the facility inspection plan described in Section F, Inspection Plan. The secondary containment system will also be inspected each operating day for evidence of cracks or breaches of containment in accordance with this inspection plan.

M-3 Hydrologic, Geologic, and Meteorologic Assessments

Appendix M-F, Draft Preliminary Assessment Report for CHK contains a preliminary meteorologic, hydrologic and geologic assessment of the site. This assessment was part of a draft preliminary assessment report done as part of a RCRA facility assessment at CHK. Additional information on the meteorological conditions of the site is located in Section B, Facility Description.

Detailed hydrologic, geologic, and meteorologic assessments of the site are not appropriate for the types of miscellaneous units at CHK. Furthermore, these miscellaneous units have been designed, constructed, and are operated in a manner to protect human health and the environment by controlling potential releases. In particular, these units are operated in such a manner to prevent releases that might have adverse effects on human health or the environment due to migration of waste constituents in ground water, the subsurface environment, surface water, wetlands, soil surface, or the air as detailed in section M-2 of this application.

M-4 Potential Pathways for Exposure

M-4a Shredder and Granulator Units - these units were closed in August, 1998.

M-4b Drum Scraper Unit

The primary potential pathway for exposure of humans or environmental receptors to hazardous constituents from the Drum Scraper Unit is exposure to vapors released to the air during the period that the drums of hazardous waste are open before and after they are processed in the Drum Scraper Unit, and to vapors released from the container while it is being processed in this unit. The amount of vapors released during the first case is very small since the drums are open for only a short period before and after they are processed in the unit. The amount of organic vapors released during the second case is also very small since the cylinder sleeve that extends into the container fits snugly enough, although it does not make an airtight seal, to keep most of the vapors from escaping. Because of the small quantity of vapors released, the only potential receptors would be facility employees who might be working next to the unit. These employees wear protective equipment and clothing to prevent them from being exposed to vapors that may be present at hazardous levels. A study was performed in August of 1991 at CHK to determine the potential for exposure of workers in the Processing Area (where the Drum Scraper Unit is located) to organic solvent vapors. The air in this area was monitored for six different organic compounds. Of these six compounds only three were detected, and they were detected in trace quantities that were well below the Occupational Safety and Health Administration (OSHA) permissible exposure levels for unprotected workers. A summary of the results of this study is contained in Appendix M-C. The emission controls discussed above prevent the exposure of receptors outside the process area to significant amounts of hazardous constituents.

The Drum Scraper Unit has been located within secondary containment to significantly reduce the possibility of any migration of hazardous waste or constituents into the ground or to surface waters.

M-4d Dispersing Unit

The primary potential pathway for exposure of humans or environmental receptors to hazardous constituents from the Dispersing Unit is exposure of facility employees working in the vicinity of the unit to organic vapors and other airborne contaminants released from the blending of materials in the unit. The potential for significant exposure is small since the Dispersing Unit Tank is covered and closed when materials are not being added or removed. Contaminant levels emitted to the air are very small, and do not present a potential for exposure to receptors outside the area of the unit. Data from air contaminant monitoring in the Processing Area is discussed in section M-2, and a summary of these data is presented in Appendix M-C, SK Air Monitoring Data. PPE is utilized by employees operating this unit to prevent potential exposure to hazardous emissions. The emission controls discussed above prevent the exposure of receptors outside the process area to significant amounts of hazardous constituents.

The Dispersing Unit has been located within secondary containment to significantly reduce the possibility of any migration of hazardous waste or constituents into the ground or to surface waters.

M-4e **<u>Drum Washing Unit</u>**

The primary potential pathway for exposure of humans or environmental receptors to hazardous emissions from the Drum Washing Unit is through exposure of facility employees to washing solvent vapors released during the washing operation. The potential for exposure to these vapors is small because the washing solvent (usually diesel) is not prone to vaporize and the washing operation is enclosed except for openings on either end of the unit for containers to enter and exit. The Drum Washing Unit is automated, which minimizes the need for an operator to stand next to the unit where the potential for exposure would be greatest. Workers in this area wear protective equipment and clothing to prevent potential exposure to hazardous emissions. The emissions controls discussed above prevent the exposure of receptors outside the Process Area to significant amounts of hazardous constituents.

The Drum Washing Unit has been located within secondary containment to significantly reduce the possibility of any migration of hazardous waste or constituents into the ground or to surface waters.

M-5 <u>Effectiveness of Treatment</u>

M-5a <u>**Shredder and Granulator Units**</u> - these units were closed in August, 1998

M-5b Drum Scraper Unit

The Drum Scraper Unit is able to mobilize solidified, non-dumpable waste within a drum to the extent that the majority of the waste can be dumped out of the drum by turning it upside down.

The technology used by the Drum Scraper Unit is established and in use in many industries. No reports on demonstrations of the effectiveness of the same or a similar treatment technology gathered under a RCRA research and development permit have been located.

M-5d Dispersing Unit

The Dispersing Unit is capable of mixing solid and liquid materials to form a pumpable liquid, with particulates generally no larger than one quarter of an inch in diameter, which is suitable as fuel for cement kilns.

The technology used in the Dispersing Unit is ordinary mixing and fluid transfer technology in common use throughout industry. No reports on demonstrations of the effectiveness of the same or a similar treatment gathered under a RCRA research and development permit are available.

M-5e Drum Washing Unit

The Drum Washing Unit is able to clean containers containing residues of waste to the extent that they meet the definition of empty as defined in 40 CFR 261.7, including containers which held acutely hazardous waste.

The technology used by the Drum Washing Unit is established container and liquid cleaning and handling technology. No reports on demonstrations of the effectiveness of the same or a similar treatment gathered under a RCRA research and development permit have been located.

M-6 Special Requirements for Handling Ignitable, Reactive and Incompatible Wastes

Clean Harbors Kansas, LLC has developed special provisions for ignitable, reactive, or incompatible wastes applicable to management of waste in containers and tanks. These provisions will be followed during processing of the waste in other regulated units as required under 40 CFR 264.17(c). These procedures are addressed in Section D, Container Management (Sections D-3f and D-3g), Section E, Tank Systems (Section E-3c), and in Section G, Procedures to Prevent Hazards (Section G-6). Additional information regarding precautions, equipment, and safety features used to prevent accidental ignition or explosion is presented in Section G, Procedures to Prevent Hazards.

APPENDIX M-A

SECTION M FIGURES M.2 Through M.12

Figure Description	Corresponding Drawing Number
M.5. 55 Gallon Drum Scraper	Drawing D-35-52-800
M.6. Motor Location and Specifications	Drawing D-43-10-6-100 (HRI, Inc.)
M.8. 1129 Gallon Dispersing Tank	Drawing PD 12/3/91
M.9. 40/50/60 VSM 18 Disperser	Drawing DL34055 (FCF-Bowers)
M.10. Barrel Dump Assembly	Drawing PD 1/25/91
M.11. P&ID Process Areas	Drawing 665300-4-W404F (FD)
M.12. Triple Rinse, HRI	Drawing D990043 (BRI, Inc.)

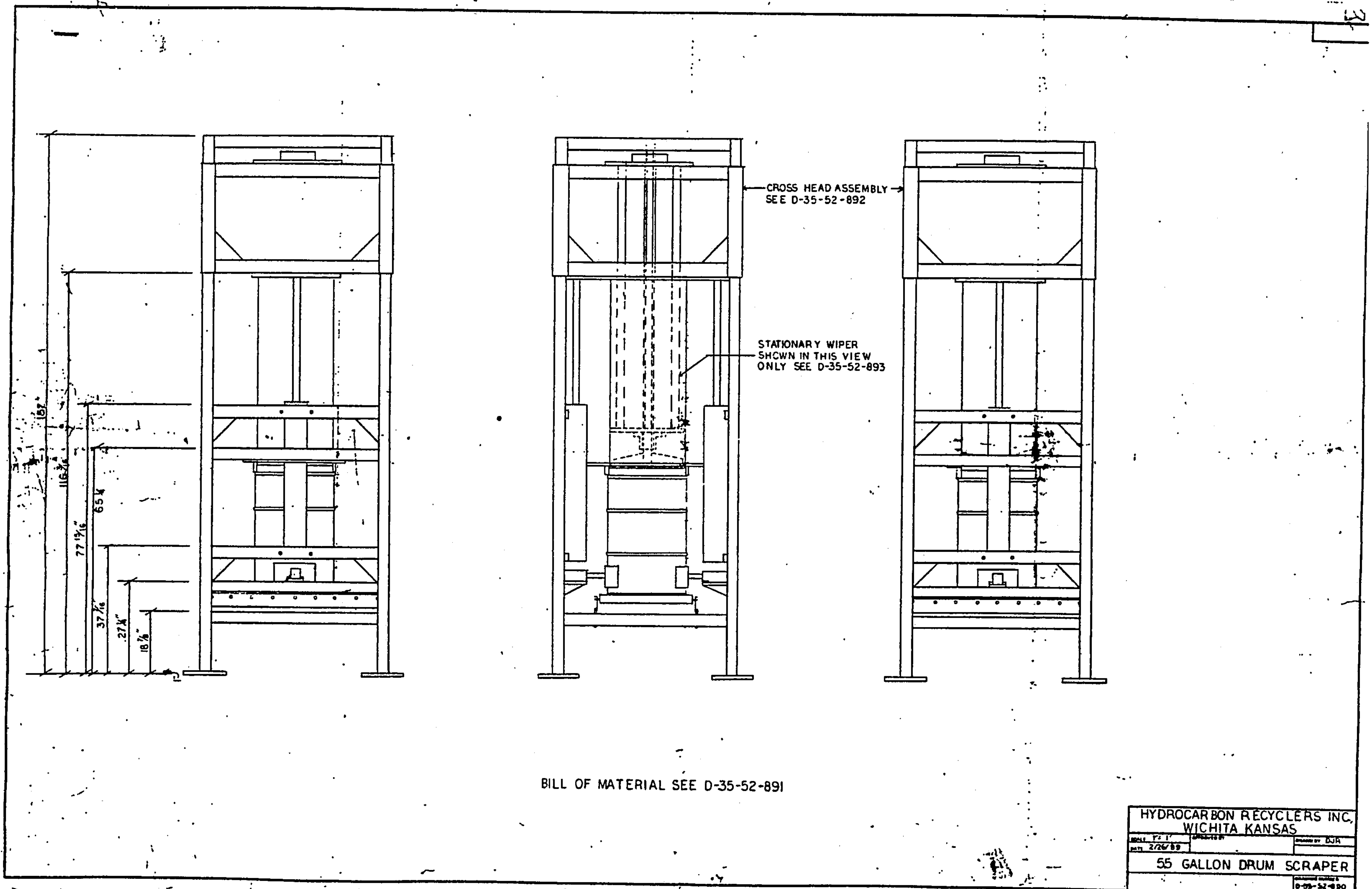


Figure M.5. 55 Gallon Drum Scraper

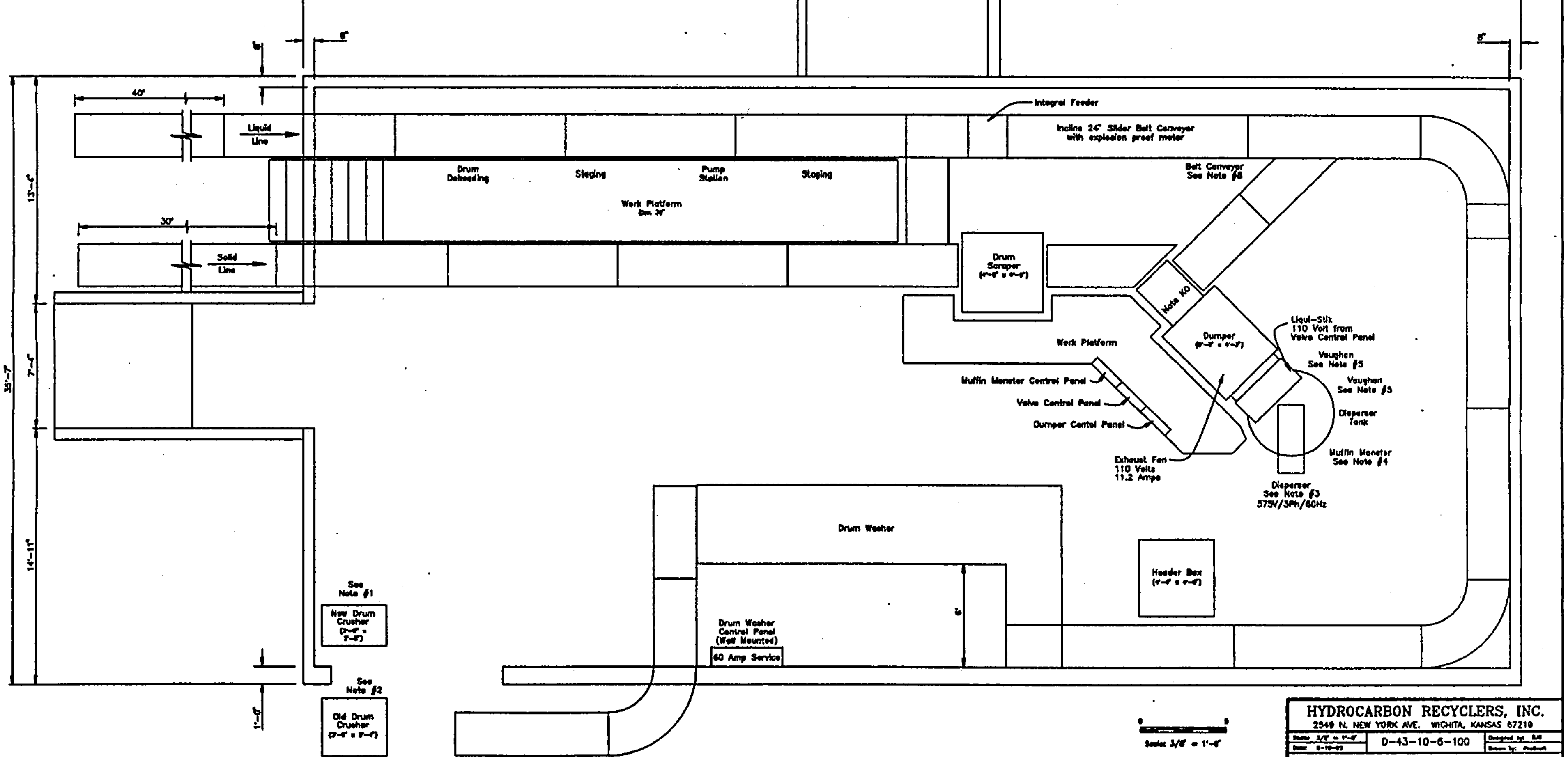
	Note #1	Note #2	Note #3	Note #4	Note #5	Note #6	Note #7	Note #8	Note #9
Name	Lincoln	Leroy Somer	Weg	Baldor	Teco	U.S. Electric	Teco	Leeson	Marathon
HP	10	10	60	10	15	20	7.5	3/4	15
Frame	215TC	215TC	364T	215TC	284T	256T	213T	F56C	254T
S.F.	1.15	1.15	1.15	1.00	1.15	1.00	1.15	1.00	1.15
RPM	1745	1720	1775	1750	1165	1755	1745	1425	1760
Amps	26/13	27/13.5	143/71	27/13.5	40/20	50.6/25.3	19/9.5	3/1.5	38/19

Notes:

Drum scraper power unit located in front of M.C.C. room. See Note #6.

Drum dumper power unit located in front of M.C.C. room. See Note #7.

Cat Pump on dumper is to be located inside D-Building. See Note #9.



HYDROCARBON RECYCLERS, INC.
2549 N. NEW YORK AVE. WICHITA, KANSAS 67219

Scale: 3/8" = 1'-0"	D-43-10-6-100	Designed by:
Date:		Drawn by:

Motor Location and Specifications

Figure M.6

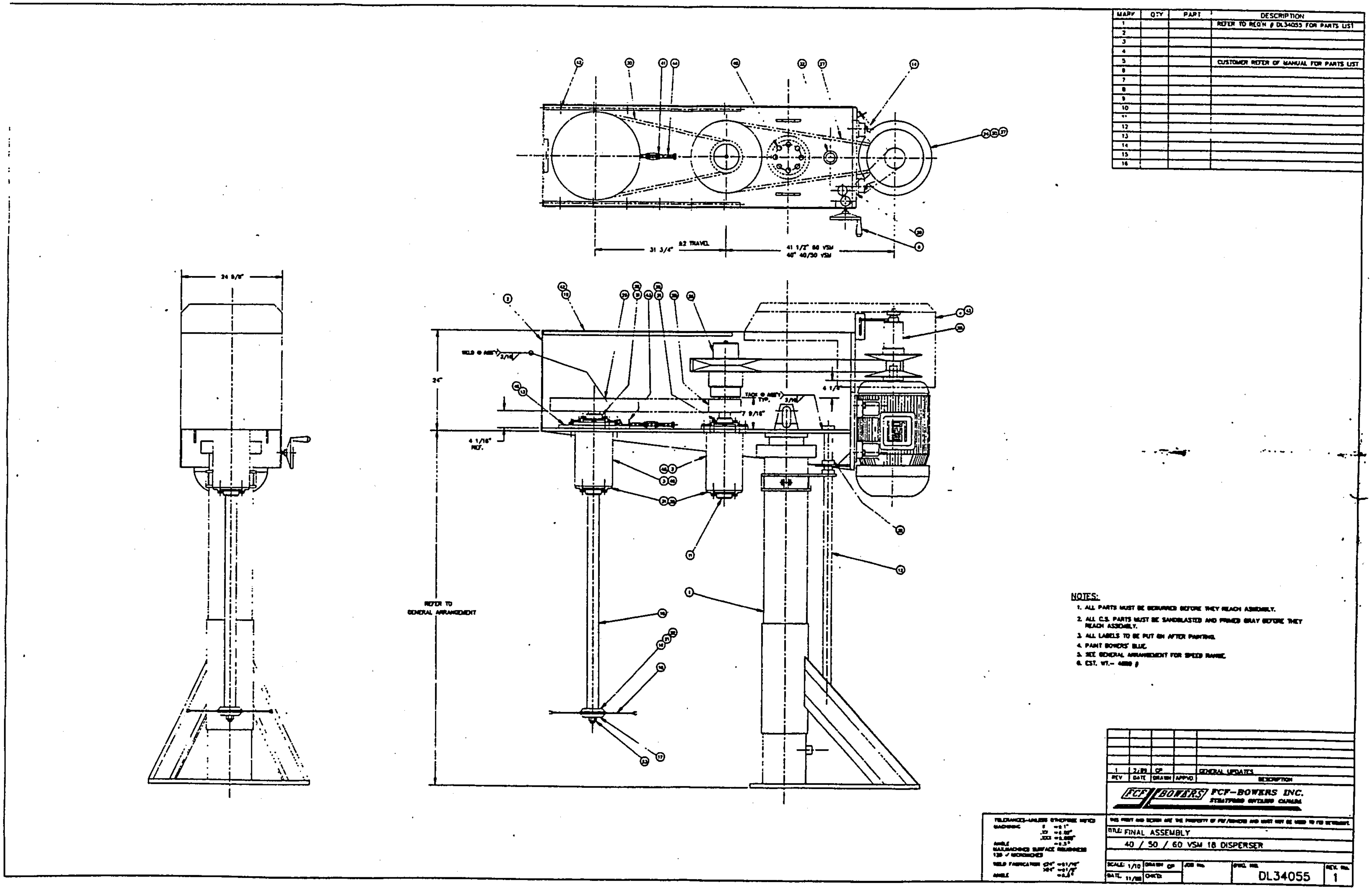
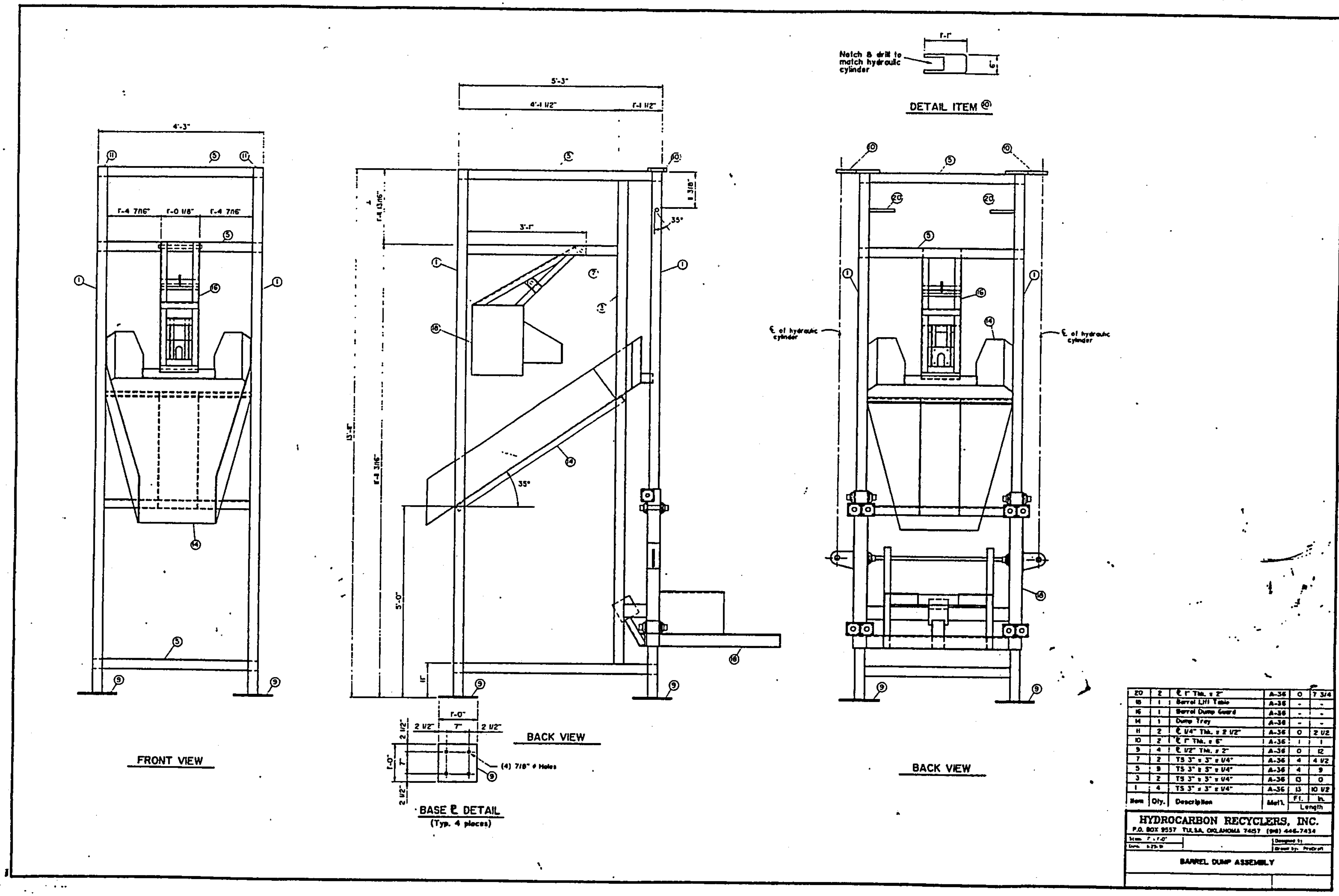
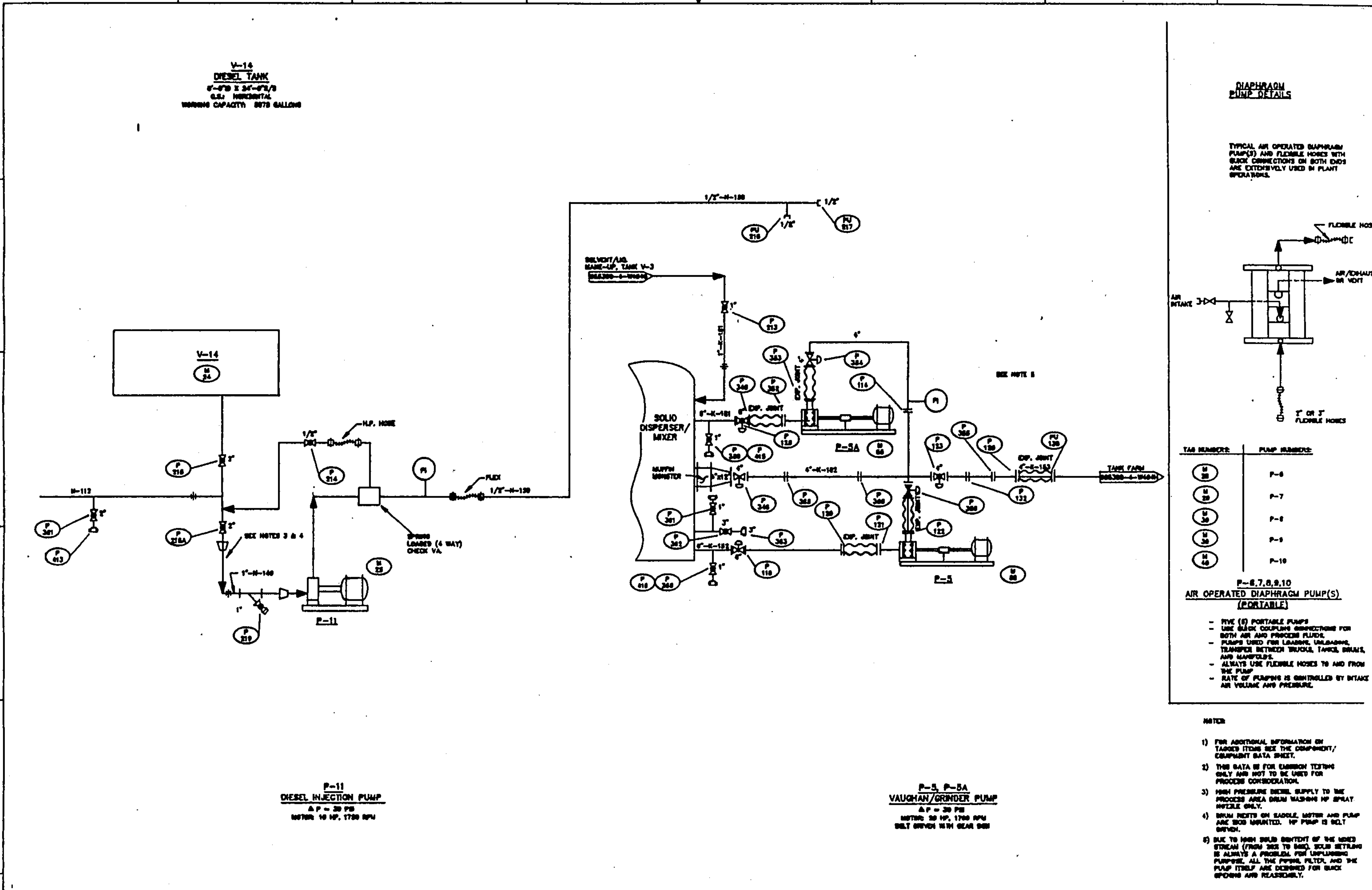


Figure M.9. 40/50/60 VSM 18 Disperser



Item	Qty.	Description	Mat'l.	Length Ft.	Length In.
20	2	℄ 1" Thk. x 2"	A-36	0	7 3/4
18	1	Barrel Lift Table	A-36	-	-
16	1	Barrel Dump Guard	A-36	-	-
14	1	Dump Tray	A-36	-	-
11	2	℄ 1/4" Thk. x 2 1/2"	A-36	0	2 1/2
10	2	℄ 1" Thk. x 6"	A-36	1	1
9	4	℄ 1/2" Thk. x 2"	A-36	0	12
7	2	TS 3" x 3" x 1/4"	A-36	4	4 1/2
5	9	TS 3" x 5" x 1/4"	A-36	4	9
3	2	TS 3" x 3" x 1/4"	A-36	13	0
1	4	TS 3" x 3" x 1/4"	A-36	13	10 1/2

Figure M.10. Barrel Dump Assembly



USPCI A Subsidiary of Union Pacific Corporation	FLUOR DANIEL

PIPING & INSTRUMENT DIAGRAM
PROCESS AREAS /V-17,P11 & P-5
PUMP DETAILS
WICHITA, KANSAS

665300-4-W404F 7 - 9 4

Figure M.11

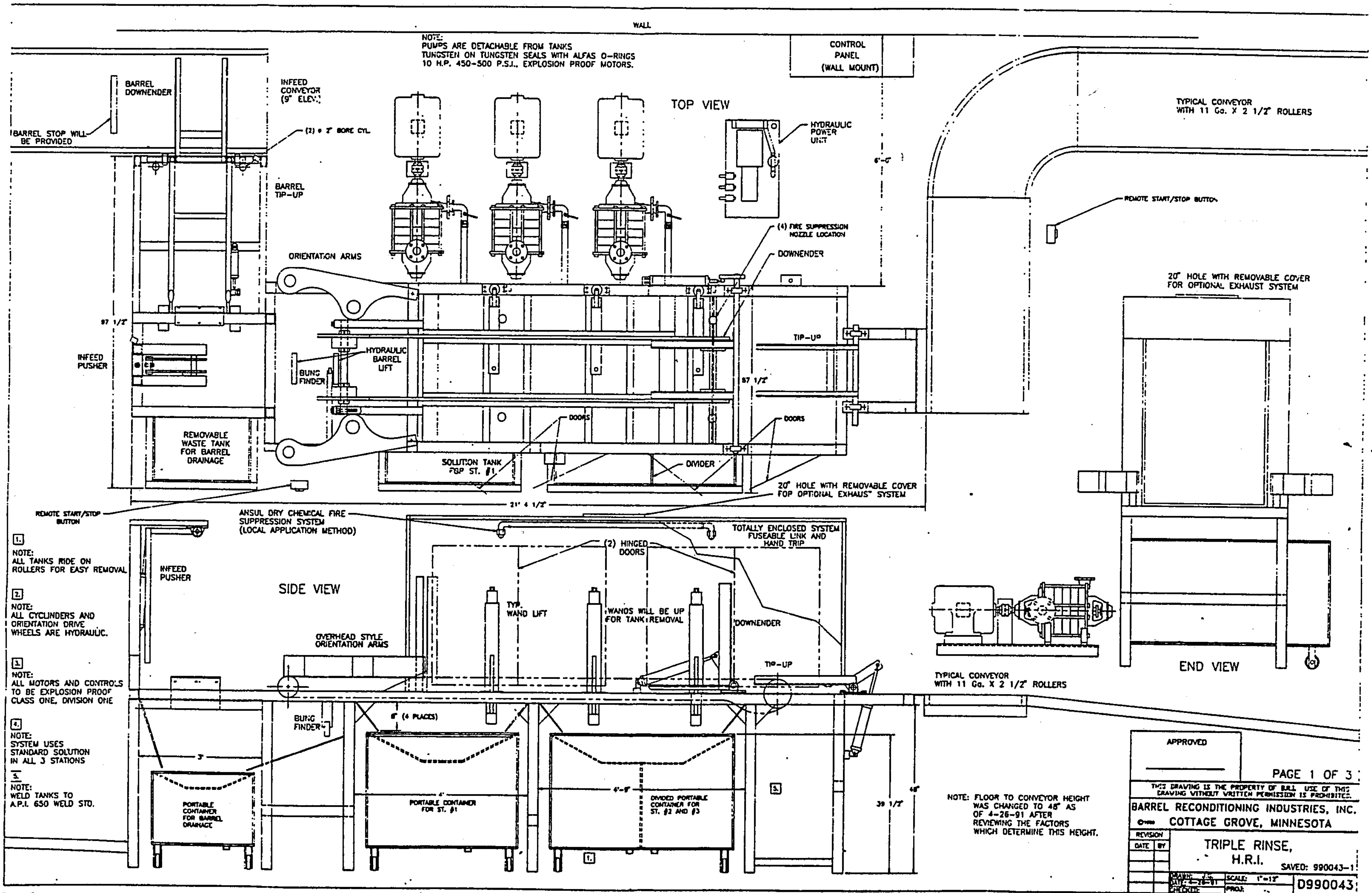


Figure M.12. Triple Rinse - HRI

APPENDIX M-B

OPERATING MANUALS: SHREDDER AND GRANULATOR UNITS

Closed August, 1998

APPENDIX M-C

CHK AIR MONITORING DATA

August 14, 1998
Revision No. 9

USPCI, INC
HEALTH AND SAFETY
MONITORING RESULTS
HRS - WICHITA
JULY 19, 1991

SAMPLE NO.	JOB DESCRIPTION LOCATION	CONTAMINANT	EXPOSURE STANDARD	RESULT	COMMENTS
HT071991002	Operator/Helper	Perchloreothylene	25 ppm	1.02 ppm	Exposure occurred in operations and drum processing area; the results include exposure that occurred during tank gauging. Sample time as 318 minutes.
		Methylene Chloride	500 ppm **	0.4 ppm	
		Toluene	100 ppm	10.4 ppm	
		Xylene	100 ppm	1.5 ppm	
		Benzene	1 ppm *	0.06 ppm	
		Acetone	750 ppm	9.2 ppm	
		1,1,1 Trichloroethane	350 ppm	0.84 ppm	
			* TLV=0.1 ppm ** TLV=50 ppm		
HT071991004	Operator/Helper Granulator Area	Perchloroethylene	25 ppm	43.4 ppm	Operator worked primarily in the Granulator Area all day; normal operating conditions - granulator down for maintenance on a frequent basis. Sample time was 317 minutes.
HT071991005	Operator/Helper Drum Processing	Perchloroethylene	25 ppm	11.1 ppm	Operator worked in Drum Processing area and conducted normal tasks for that area (i.e., moving and staging drums, pumping drums, dumping drums, etc.) Sample time was 308 minutes.
		Xylene	100 ppm	9.3 ppm	
		Toluene	100 ppm	1.1 ppm	
		Benzene	1 ppm *	0.03 ppm	
		Methylene Chloride	500 ppm **	0.19 ppm	
			*TLV=0.1 ppm **TLV=50 ppm		
HT071991006	Operator/Helper Tank Storage Area	Perchloroethylene	25 ppm	11.1 ppm	Exposure occurred while gauging tanks; 15 tanks gauged during sampling period. Total time for task and sampling time was 15 minutes.
		Methylene Chloride	500 ppm *	9.3 ppm	
		Toluene	100 ppm	1.1 ppm	
		Xylene	100 ppm	<0.16 ppm	
		Benzene	1 ppm **	0.04 ppm	
		Acetone	750 ppm	0.86 ppm	
		1,1,1 Trichloroethane	350 ppm	10.2 ppm	
			*TLV=50 ppm **TLV=0.1 ppm		
HT071991008	Operator/Helper Granulator Area	Perchloroethylene	25 ppm	68.2 ppm	Exposure occurred while dumping drums of granulated material into augur leading to the Dryer. Sample time was 15 minutes.
HT071991009	Operator/Helper Granulator Area	Perchloroethylene	25 ppm	29.7 ppm	Operator was monitored while he was loading canisters into the granulator feed hopper. Sample time was 15 minutes.

USPCI, INC
HEALTH AND SAFETY
MONITORING RESULTS
HRS - WICHITA
JULY 19, 1991

SAMPLE NO.	JOB DESCRIPTION LOCATION	CONTAMINANT	EXPOSURE STANDARD	RESULT	COMMENTS
HT071991010	Operator/Helper Granulator Area	Perchloroethylene	25 ppm	28.4 ppm	Operator was at floor level while the granulator was in operation. Sample time was 15 minutes.
HT071991011	Granulator Area	Perchloroethylene	25 ppm	3.7 ppm	This was an "area" sample collected in the vicinity of the dryer augur. The sample was collected while the granulator was off and the dryer was being unloaded. Sample time was 12 minutes.
HT071991012	N/A	Perchloroethylene Benzene Methylene Chloride	N/A N/A N/A	ND* ND ND * None Detected	"Blank" for quality control.
HT071991013	N/A	Perchloroethylene Benzene Methylene Chloride	N/A N/A N/A	ND ND ND	"Blank" for quality control.
HT071991023	Granulator Area	Perchloroethylene	25 ppm	35 ppm	This indicator tube sample was taken when the operator removed the lid from the canister storage drum.
HT071991022	Granulator Area	Perchloroethylene	25 ppm	7 ppm	This indicator tube sample was taken just after the operator places the canister into the feed hopper and steps back.
HT071991024	Granulator Area	Perchloroethylene	25 ppm	7 ppm	This indicator tube sample was taken at floor level.
HT071991025	Granulator Area - carbon filter room	Perchloroethylene	25 ppm	11 ppm	This indicator tube sample was taken at floor level in the carbon filter room.

USPCI, INC
HEALTH AND SAFETY
MONITORING RESULTS
HRS - WICHITA
AUGUST 15 - 16, 1991

SAMPLE NO.	JOB DESCRIPTION LOCATION	CONTAMINANT	EXPOSURE STANDARD	RESULTS	COMMENTS
HW081591002	Operator/Helper	Benzene	1 ppm	<0.18 ppm	Survey monitoring was performed at the drum processing
		Methylene Chloride	500 ppm	<2.60 ppm	area. Task was limited due to equipment problems.
	Drum Processing	Perchloroethylene	25 ppm	<0.53 ppm	Sample time was 45 minutes.
		Toluene	100 ppm	<0.31 ppm	
		Trichlorethylene	50 ppm	<1.02 ppm	
		1,1,1 Trichloroethane	350 ppm	<1.01 ppm	
HW081691001	Operator/Helper	Benzene	1 ppm	<0.02 ppm	Survey monitoring was performed at the drum processing
		Methylene Chloride	500 ppm	<0.26 ppm	area. Sampling was representative of normal operations.
	Drum Processing	Perchloroethylene	25 ppm	<0.05 ppm	Sample time was 488 minutes.
		Toluene	100 ppm	4.27 ppm	
		Trichloroethylene	50 ppm	<0.10 ppm	
		1,1,1 Trichloroethane	350 ppm	3.04 ppm	
HW081691002	Operator/Helper	Benzene	1 ppm	<0.02 ppm	Survey monitoring was performed at the drum processing
		Methylene Chloride	500 ppm	<0.24 ppm	area. Sampling was representative of normal operations.
	Drum Processing	Perchloroethylene	25 ppm	<0.05 ppm	Sample time was 498 minutes.
		Toluene	100 ppm	2.24 ppm	
		Trichloroethylene	50 ppm	<0.10 ppm	
		1,1,1 Trichloroethane	350 ppm	2.37 ppm	
HW081691004	Operator	Benzene	1 ppm	<0.02 ppm	Survey monitoring performed in drum sampling
		Methylene Chloride	500 ppm	<0.28 ppm	processing area. Sampling was representative of normal
	Drum Processing	Perchloroethylene	25 ppm	<0.05 ppm	operations, the operator spent most of the time operating
		Toluene	100 ppm	4.48 ppm	the forklift and loading drums onto the roller conveyor.
		Trichloroethylene	50 ppm	<0.10 ppm	Sample time was 452 minutes.
		1,1,1 Trichloroethane	350 ppm	4.18 ppm	
HW081691005	N/A	Benzene	N/A	ND	"Blank" for quality control.
		Methylene Chloride	N/A	ND	
		Perchloroethylene	N/A	ND	
		Toluene	N/A	ND	
		Trichloroethylene	N/A	ND	
		1,1,1 Trichloroethane	N/A	ND	
HW081691006	Operator/Helper	Benzene	1 ppm	<0.24 ppm	Survey monitoring performed at the drum processing.
		Methylene Chloride	500 ppm	<3.04 ppm	Sampling was representative of normal operations, the
	Drum Processing	Perchloroethylene	25 ppm	<0.83 ppm	operator spent most of the time operating the drum
		Toluene	100 ppm	22.92 ppm	crusher. Sampling time was 486 minutes.
		Trichloroethylene	50 ppm	<1.51 ppm	
		1,1,1 Trichloroethane	350 ppm	29.41 ppm	
HW081691007	Operator	Benzene	1 ppm	<0.26 ppm	Survey monitoring performed at drum processing.
		Methylene Chloride	500 ppm	<3.22 ppm	Sampling was representative of normal operations.
	Drum Processing	Perchloroethylene	25 ppm	<0.88 ppm	Sample time was 452 minutes.
		Toluene	100 ppm	2.54 ppm	
		Trichloroethylene	50 ppm	<1.58 ppm	
		1,1,1 Trichloroethane	350 ppm	5.83 ppm	

USPCI, INC.
CORPORATE HEALTH AND SAFETY
MONITORING SURVEY
HRS - WICHITA
AUGUST 15-16, 1991

Executive Summary

An exposure monitoring survey was conducted at HRS-Wichita on August 15-16, 1991. Site employees were monitored to determine their potential exposure to various organic vapors and to noise reflective of three different task related operations.

Noise levels for a forklift operator demonstrated levels below 85 dBA. The time weighted average was 83.2 dBA. However, tasks in which the operator was involved were outside of areas where noise levels are generally of concern. The results support earlier findings suggesting levels could reasonably be expected to exceed 85 dBA for forklift operators. Depending on the task in which they may be involved, operators may be required to wear hearing protection in areas where noise levels exceeding 85 dBA have been observed.

Vapor monitoring in the drum processing area produced results indicating that potential worker exposures to solvents were below the applicable OSHA PELs. This included sampling of two specific tasks: drum processing and drum sampling. While conditions may change, the present sampling indicates the operators are wearing adequate respiratory protection for routine tasks.

A summary of the air monitoring data is at the end of this report.

APPENDIX M-E

OPERATING MANUALS: DISPERSING UNIT

FCF-BOWERS INC.
487 LORNE AVE. E., STRATFORD, ONT. N5A 6T1
Tel. 519-271-4750 Fax. 519-271-1092

BOWERS DISPERSER

Installation, Operating & Maintenance Instructions

Spare Parts Diagrams

Machine Model No: 60 VSM 18 Serial No: 1610-91

Please quote these numbers in all communications regarding this machine and especially if ordering parts.

Customer: Hydrocarbon Recycling

Customer's P.O. No. 15196 Shipped: June 1991

Safety First

Any moving machine part can be dangerous. To prevent accidents, never run the machine unless rotor is **in a batch**. Caution - a cleaning rag or loose clothing wrapped around a rotating shaft or coming into contact with a moving rotor can cause serious injury.

CUSTOM FABRICATION
DISPERSERS, MIXERS
PROCESS VESSELS
MCCR-ASME-U
CSA - Z 299.3

Gordon Switzer
Technical Sales & Service

FCF-BOWERS INC.
487 LORNE AVENUE EAST, STRATFORD, ONTARIO N5A 6T1
Tel. 519-271-4750 Fax. 519-271-1092

TECHNICAL SPECIFICATION

Electrical Components satisfy hazardous area application Class 1, Division 2, Group D.

Disperser

Motor 60HP/1800RPM 575V/3Ph/60Hz 364T Frame
Full Load Current 56 Amps

V.S. Drive - Speed Selector 417/518-60

V Belts 8.0/21.2 (2.65 Ratio)

Disperser drive is rated 60 HP at 680 RPM. Refer to Diagram No. 1

Motor Speed (RPM)	C'Shaft Speed (RPM)	Disperser Speed (RPM)
1800	3000	1132 (Max)
	1800	680 (1:1)
	630	240 (Min)

Useful Speed Range 250 to 1040 RPM

Tip Speed fpm
21" Rotor 1319 to 5717 RPM

PROCESSING RECOMMENDATIONS & INSTRUCTIONS

The enclosed sheet headed P-2 & P-7 Dispersion Rotors briefly describes how these blades utilise dual shear to produce maximum process results in a minimum of time.

The information on rotor to tank relationship, speed, power and batch size given on the reverse side of the Rotor Sheet and the following operating tips have been prepared to assist you, the operator, in obtaining the best possible process results with a minimum of effort.

Tank selection is a very important first step. Whenever possible always use a tank in which the depth of your batch will be at least equal to the tank diam. Use of tanks with larger diameters requires use of larger rotors to maintain a satisfactory tank diam. to rotor ratio. These larger size rotors required, may well be beyond the size range suitable for proper use with your machine.

The rotor to tank ratio table will prove a useful guide for selection of proper tank and rotor combination. "Standard" ratios shown are widely used for products such as paint base pastes, larger ratios can often be used for products having a lower viscosity and such operations as thinning, tinting, cutting and general mixing. Smaller ratios will be required for processing higher viscosity materials.

Procedure is usually the same for all products. The liquid portion of the batch is placed in the tank and the machine is started. Dry ingredients are then added. Feed (do not dump) dry materials into the batch as fast as they are being incorporated into the liquid. This usually only requires seconds but can make a difference of minutes on total batch processing time. This method of addition insures fastest wetting of dry materials and minimizes possibility of lumping. "Floating" powder is usually an indication that it is being added too fast or that the impeller is too low in the batch, to correct raise impeller slightly and/or decrease feed rate.

When all dry ingredients are in, any material adhering to the tank wall or shaft should be removed into the batch.

PROCESSING RECOMMENDATIONS & INSTRUCTIONS (Cont'd.)

After all ingredients are in there should be a rotational and fold in movement to the batch with material moving from the tank wall towards the disperser shaft. The rotor should be fully buried in the batch at all times. Excessive vortexing can cause undesirable aeration of the product and result in power wasting rotor skip. There are several ways to eliminate excessive vortexing including: use small diam. tank (and rotor) with resultant greater product depth, adjust depth of rotor, reduce speed, increase viscosity by holding back some of the batch liquid or set rotor slightly off center in tank.

Power available is limited to the rating of the motor fitted to your machine. The full load rating of the motor in amps is given on the nameplate fitted to this motor. Check the reading on your ammeter periodically during processing to make sure that you are not exceeding the full load amp rating of your motor. Overloading of the motor can cause serious damage. In the event of overloading there are several ways in which the power drawn may be decreased. These are: reduce speed, lower viscosity of batch, decrease batch size and use smaller rotor.

Speed required to get the process results you require will vary from product to product. Dispersion applications usually require a rotor tip speed in the 3400 to 4000 feet per minute (F.P.M.) range. Speeds for such operations as thinning, mixing, cutting, etc. are usually 500 to 1000 F.P.M. less than for dispersion. Since power drawn increases with speed you should always use the minimum speed required to process each batch. Use of lowest possible speed will minimize possibility of rotor skip and slip. Rotor skip causes uneven rotor loading and wide power demand fluctuation and vibration. Rotor slip generates undesirable heat.

Rotor speeds are always expressed in feet per minute. To determine this speed divide rotor diam. in inches by 12 and multiply resulting figure by 3.14 times shaft R.P.M. (revolutions per minute).

NOTE: While the above information refers specifically to the Standard P-2 Rotors it is also generally applicable to processing with the new P-7 Rotor which has been specifically designed for high viscosity applications.

Naturally with higher viscosity materials the smaller rotor to tank ratios should be used and with the P-7 Rotor suggested speed ranges may be increased by approx. 500 F.P.M.

IMPORTANT

Do not overload motor.

Do not adjust speed with motor stopped.

Do not lift rotor out of batch with motor running.

Always stop and start machine at lowest speed.

Always have rotor in batch or empty tank when running.

Always make sure all controls are locked before starting unit.

Always keep machine clean and service regularly.

APPENDIX M-F

DRAFT PRELIMINARY ASSESSMENT REPORT FOR CHK

170H

DRAFT
PRELIMINARY ASSESSMENT REPORT

RCRA FACILITY ASSESSMENT
HYDROCARBON RECYCLERS, INC.
WICHITA, KANSAS

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460

Work Assignment No.	:	R07015
USEPA Region	:	7
Date Prepared	:	September 24, 1990
Contract No.	:	68-W9-0006
PRC No.	:	009R07015
Prepared by	:	B&V Waste Science and Technology Corp.
Work Assignment Manager	:	John P. Nett
Telephone No.	:	913/339-2900
USEPA Primary Contract	:	Mark Matthews
Telephone No.	:	913/551-7635

prc

PRC Environmental Management, Inc.

DRAFT
PRELIMINARY ASSESSMENT REPORT

RCRA FACILITY ASSESSMENT
HYDROCARBON RECYCLERS, INC.
WICHITA, KANSAS

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460

Work Assignment No.	:	R07015
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Prepared by	:	B&V Waste Science and Technology Corp.
Work Assignment Manager	:	John P. Nett
Telephone No.	:	913/339-2900
USEPA Primary Contract	:	Mark Matthews
Telephone No.	:	913/551-7635

RCRA FACILITY ASSESSMENT
DRAFT PRELIMINARY ASSESSMENT REPORT
HYDROCARBON RECYCLERS, INC.

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DRAFT PRELIMINARY ASSESSMENT REPORT
HYDROCARBON RECYCLERS, INC.

LIST OF ABBREVIATIONS

BVWST	B&V Waste Science and Technology Corp.
CEI	compliance envaluation inspection
CM	corrective measures
cm/s	centimeters per second
CSI	Conservation Services, Inc.
gpd	gallons per day
HRI	Hydrocarbon Recyclers, Inc.
KDHE	Kansas Department of Health and Environment
msl	mean sea level
NOAA	National Oceanic and Atmospheric Administration
NOD/LOW	Notice of Defiency/Letter Of Warning
NOV	notice of violation
PR	preliminary review
PRC	PRC Environmental Management, Inc.
RCRA	Resource Conservation and Recovery Act
RFA	RCRA facility assessment
RFI	RCRA facility investigation
RI	remedial investigation
RSC	Reid Supply Company
SCS	Soil Conservation Service
SCSC	Service Chemical Supply Company
SV	sampling visit
SWMU	solid waste management unit
TSD	treatment storage and disposal
ug/l	micrograms per liter
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USPCI	U.S. Pollution Control, Inc.
VOC	volatile organic compound
VSI	visual site inspection
WNID	Wichita North Industrial District

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC) received Work Assignment No. R07015 from the U.S. Environmental Protection Agency (USEPA) under Contract No. 68-W9-0006 (TES 9). Under this work assignment, Black & Veatch Waste Science and Technology Corp. (BVWST) will provide technical support to USEPA in the performance of a Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) of the Hydrocarbon Recyclers, Inc. facility in Wichita, Kansas.

The purpose of this report is to document the first two steps in the RFA process [the preliminary review (PR) and the visual site inspection (VSI)]. This Preliminary Assessment report will document the information gathered in the PR and VSI and will evaluate the need for a sampling visit (SV). This report is an intermediate step in the RFA under the RCRA corrective action program. Information in Sections 1.1 and 1.2 has been developed from the RCRA Facility Assessment Guidance (USEPA, 1986).

1.1 HAZARDOUS AND SOLID WASTE AMENDMENTS AND OTHER REGULATORY AUTHORITY

The Hazardous and Solid Waste Amendments (HSWA) of November 8, 1984 provide the USEPA with the authority to require corrective action at RCRA treatment, storage, and disposal (TSD) facilities. These authorities include:

- <u>§3004(u) - Corrective Action for Continuing Releases</u>
  Requires that any permit issued after November 8, 1984 provide for corrective action for all releases from solid waste management units (SWMUs) at the facility regardless of the time which waste was placed in the unit. The provision also requires that owners/operators demonstrate financial assurance for any required corrective action, and allows schedules of compliance to be used in permits where the corrective action cannot be completed prior to permit issuance.

- <u>§3008(h) - Interim Status Corrective Action Orders</u>
  Provides authority to issue enforcement orders to compel corrective actions or other response measures at interim status facilities, as well as authority to take civil action against facilities for appropriate relief.

- §3004(v) - Corrective Action Beyond the Facility Boundary
  Directs USEPA to issue regulations requiring corrective action beyond the facility boundary to protect human health and the environment. The only exception to this is if the owner/operator can demonstrate that it is unable to obtain permission to take corrective action on offsite property. Until the regulations requiring corrective action beyond the facility boundary are promulgated, corrective action orders may be issued to require the necessary corrective action.

The HSWA §3004(u) provision focuses on investigating releases from SWMUs at RCRA facilities. SWMUs are defined as "any discernible (solid) waste (as defined in 40 CFR 261.2) unit at a RCRA facility from which hazardous constituents might migrate, irrespective of whether the unit was intended for the management of solid and/or hazardous waste" (USEPA, 1986). The SWMU definition includes containers; tanks; surface impoundments; waste piles; land treatment units; landfills; incinerators; underground injection wells; wastewater treatment units; recycling units; and areas contaminated by routine, and systematic discharges from a process area. The §3008(h) authority applies to any release of hazardous wastes and/or hazardous constituents from an Interim Status TSD facility. Other HSWA authorities that may be utilized by USEPA in addressing releases include:

- §3005(c) - Permit Issuance
  Authorizes USEPA, upon determination that a facility is in compliance with Sections 3004 and 3005 of RCRA, to issue permits to TSD facilities that have applied for such permits.

- §3007 - Inspections
  Permits USEPA to enter, inspect, sample, and examine records of any generator or TSD facility for purposes of developing any regulation or enforcing the provisions of RCRA.

- §3008(a) - Compliance Orders
  In case of a violation of RCRA Subtitle C--Hazardous Waste Management, this section authorizes USEPA either to issue an order assessing a civil penalty and/or requiring compliance, or to commence a civil action for appropriate relief.

- §3013 - Monitoring, Analysis, and Testing
  Provides authority to order a TSD facility to perform monitoring, analysis and testing at the site, if there is a potential for a substantial hazard to human health or the environment. If the facility cannot perform the

work, USEPA may perform it, or USEPA may authorize the state to perform the monitoring.

- §7003 - Imminent Hazard
  Authorizes USEPA to bring suit to prohibit handling, transportation, treatment, storage or disposal of a solid or hazardous waste if "imminent or substantial endangerment to health or the environment" is present. This Section also authorizes USEPA to take other appropriate actions, as necessary.

1.2 RCRA CORRECTIVE ACTION PROGRAM

The RCRA corrective action program derived from the HSWA authorities consists of three phases:

- The RFA to identify releases, or potential releases, requiring further investigation.
- The RCRA Facility Investigation (RFI) to fully characterize the extent of releases.
- Corrective Measures (CM) to determine the need for, and extent of, remedial measures. This step includes the selection and implementation of appropriate remedies for all problems identified.

The specific intent of the RFA is to identify and gather information on releases at RCRA facilities, to evaluate solid waste management units and other areas of concern for releases to all media, and to make preliminary determinations regarding releases of concern and the need for further actions and interim measures at the facility.

The RFA potentially consists of three steps: the Preliminary Review (PR), the Visual Site Inspection (VSI), and the Sampling Visit (SV). The PR focuses on evaluating existing data in the form of inspection reports, permit applications, historical monitoring data, and information obtained through interviews with state personnel who are familiar with the facility. The VSI, the second step, consists of a visit to the facility for visual data collection to assist in determining whether releases have occurred. The optional third step of the RFA is the SV, which may be used to fill data gaps, if any remain after completion of the PR and VSI.

1.3 PRELIMINARY REVIEW

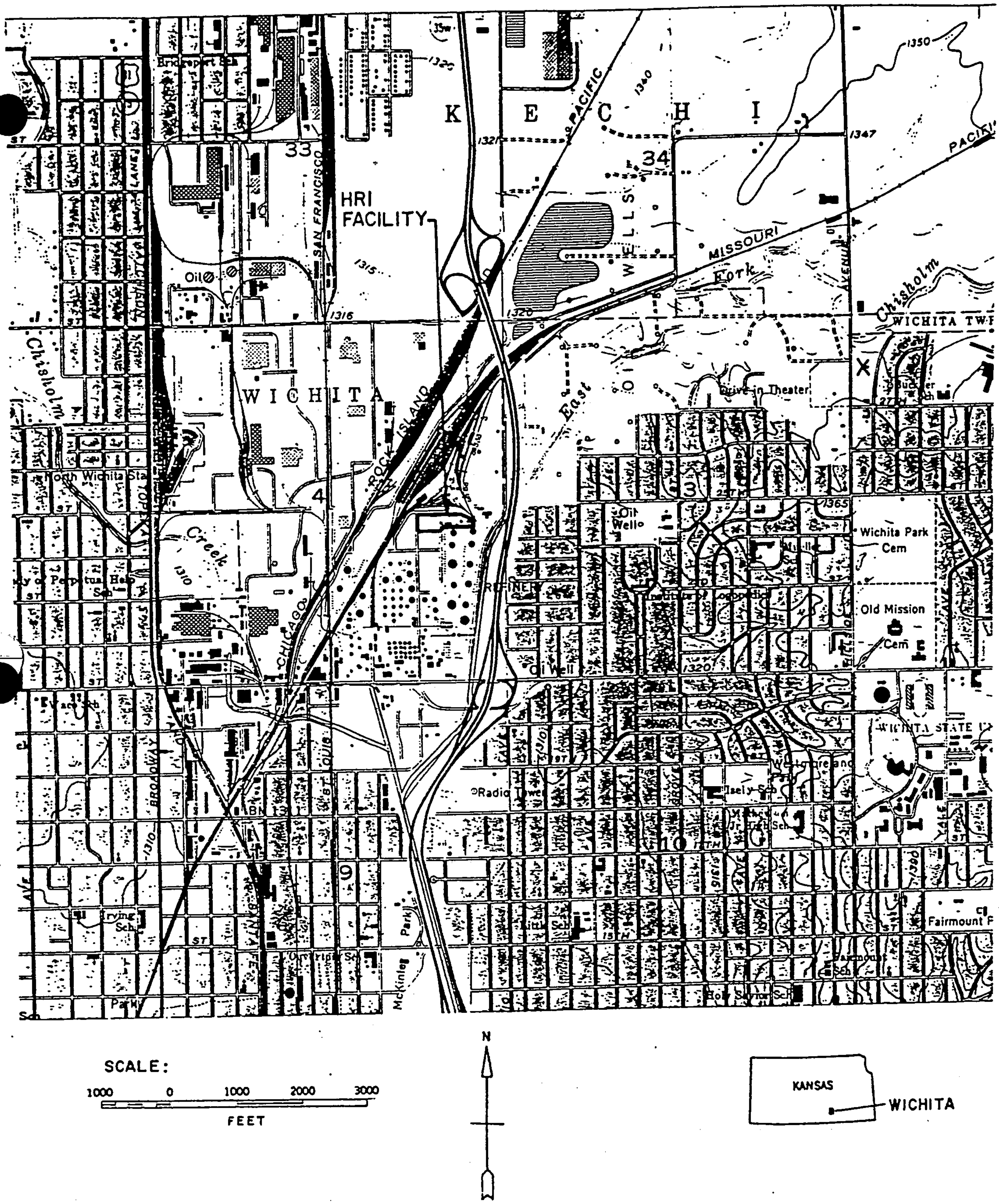
The preliminary review for the Hydrocarbon Recyclers, Inc. (HRI) involved review of USEPA Region VII and Kansas Department of Health and Environment (KDHE) file documents for the facility. The PR was conducted in March 1990 by Mr. John Nett of BVWST. Documents reviewed as a part of the PR included RCRA Part A and B permitting records, inspection and enforcement records and correspondence, and facility submittals to KDHE and USEPA. Specific file documents that were reviewed and incorporated into this report include the following:

- RCRA Part B Permit Application for Reid Supply Company, Wichita, Kansas. December 6, 1984.
- Report of RCRA Compliance Inspection at Reid Supply Company, Wichita, Kansas. USEPA Region VII, Environmental Services Division. April 5-6, 1984.
- Part B Application Inspection Report, Reid Supply Company. October 30, 1984.
- Re-inspection at Reid Supply Company, Wichita, Kansas, to determine compliance with State Order (RCRA). USEPA Region VII Memorandum. July 26, 1984.
- RCRA Compliance Inspection Report, Conservation Services, Inc. KDHE. July 2, 1987.
- Partial Closure Plan, Hydrocarbon Recyclers, Inc. April 1988.
- RCRA Compliance Inspection Report, Conservation Services -- Hydrocarbon Recyclers, Inc. June 28, 1988.
- RCRA Compliance Inspection Report, Hydrocarbon Recyclers, Inc. June 21, 1989.

Information from these documents, as well as other file and background sources, helped to identify and characterize the solid waste management units and other areas of concern, as well as potential release from these locations at the HRI facility.

1.4 VISUAL SITE INSPECTION OF HYDROCARBON RECYCLERS, INC.

A visual site inspection was conducted at the HRI Wichita, Kansas, facility on June 19, 1990. The VSI was conducted by Mr. John Nett, civil engineer, and Mr. Jerome Frizzell, environmental scientist, with BVWST. Accompanying BVWST personnel on the VSI were Mr. Mark Matthews, USEPA Region VII - RCRA Permits Section, and Ms. Brenda Clark, KDHE. Representing HRI during the inspection were Mr. Charles Trumbold, General Manager - HRI Wichita, Kansas facility; Mr. David Trumbold, Sales Manager - HRI Wichita, Kansas facility; and Ms. Catherine Orban, Permit Writer - HRI Tulsa Operations. During the VSI, the history of the facility and current waste operations were reviewed, solid waste management units and areas of concern were discussed and observed, and photographs of these areas were taken. Data gaps which remained following the PR were addressed during the discussions with the HRI representatives. Additional information gathered during the VSI has been incorporated into this preliminary assessment report. A summary of the VSI and a log of the photographs taken during the VSI are contained in Appendices A and B of this report, respectively.



SOURCE: U.S. GEOLOGICAL SURVEY, 7.5 MINUTE SERIES (TOPOGRAPHIC)
WICHITA EAST QUADRANGLE, KANSAS, 1961.

FIGURE 2-1
SITE VICINITY MAP
HRI FACILITY
RCRA FACILITY ASSESSMENT

TABLE 2-1 CLIMATOLOGICAL DATA, WICHITA, KANSAS.

	Temperature (deg F)					Precipitation (in.)				Snowfall (in.)		Surface Winds	
Month	Mean Daily Max.	Mean Daily Min.	Mean Monthly	Extreme Max.	Extreme Min.	Monthly Mean	Monthly Max.	Monthly Min.	Max. 24 Hrs.	Monthly Max.	Max. 24 Hrs.	Prevailing Direction	Mean Speed (mph
Jan	40	19	30	75	-12	0.68	2.73	T	1.72	19.7	13.0	S	12.2
Feb	46	24	35	84	-21	0.85	3.33	0.02	1.53	16.7	11.9	N	12.7
Mar	56	32	44	89	-2	2.01	9.17	0.01	2.65	16.5	13.5	S	14.1
Apr	68	45	56	96	15	2.30	5.57	0.22	2.51	4.6	4.6	S	14.1
May	77	55	66	100	31	3.91	8.85	0.52	4.70	0.0	0.0	S	12.4
Jun	87	65	76	110	43	4.06	10.46	0.94	4.98	0.0	0.0	S	12.1
Jul	93	70	81	113	51	3.62	9.22	0.05	3.86	0.0	0.0	S	11.2
Aug	92	68	80	110	48	2.80	7.91	0.31	3.76	0.0	0.0	S	11.1
Sep	82	59	71	105	31	3.45	9.46	0.03	3.03	0.0	0.0	S	11.6
Oct	71	47	59	95	21	2.47	6.13	T	5.03	0.1	0.1	S	11.9
Nov	55	34	44	85	1	1.47	5.88	T	4.33	7.1	6.8	S	12.2
Dec	45	24	34	83	-10	0.99	4.71	0.03	2.60	13.8	9.0	S	12.1
Ann	68	45	56	113	-21	28.61	10.46	T	5.03	19.7	13.5	S	12.3

Source: Local Climatological Data, Annual Summary, Wichita, Kansas, NOAA, 1988.
Period of record for normals: 1951 - 1988

T indicates trace amounts

characterized by heavy rainfall, strong winds, and tornados, is not uncommon during the spring and early summer months. Average annual snowfall is nearly 20 inches per year (NOAA, 1988).

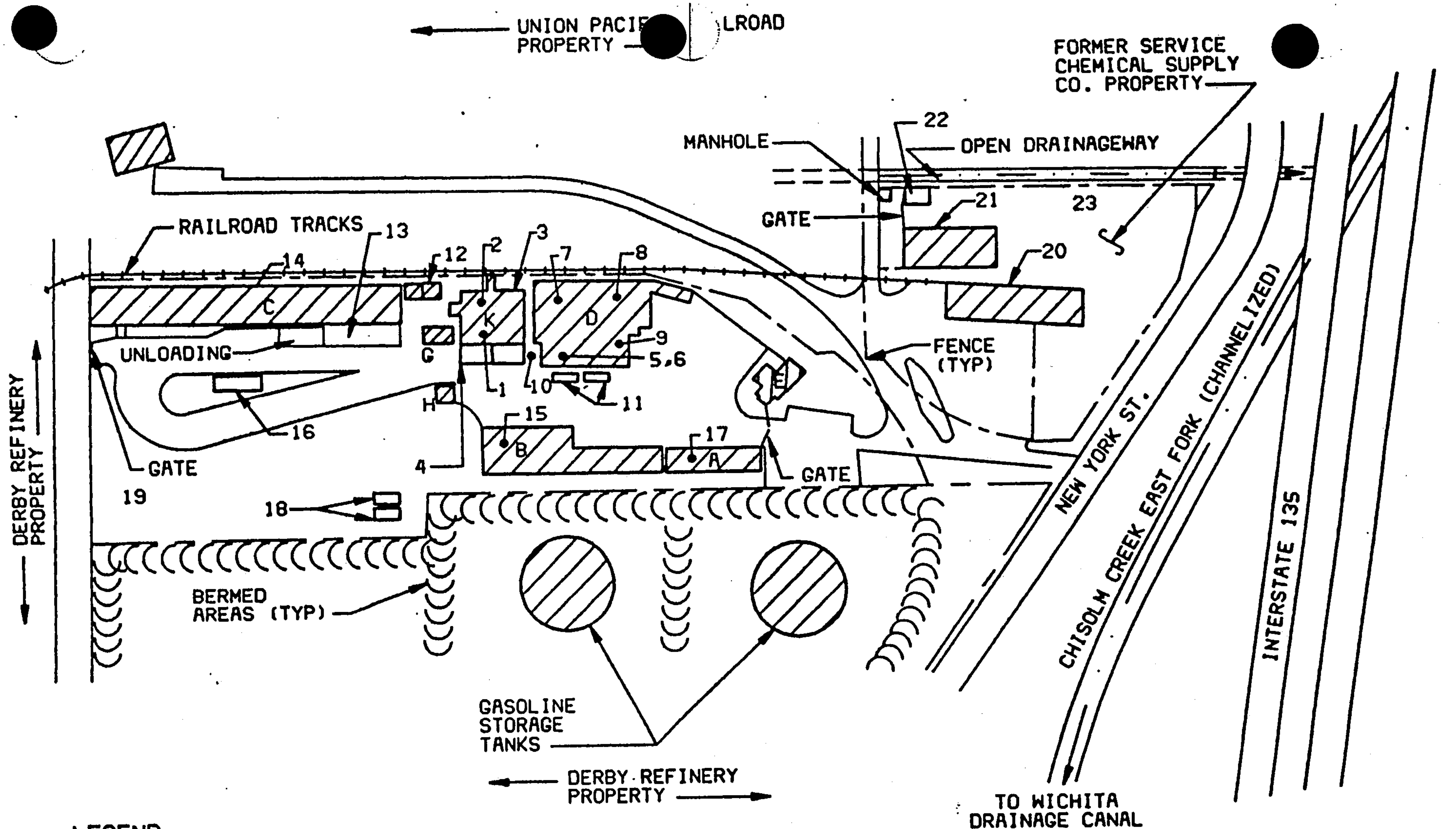
The average annual prevailing wind direction is from the south, with the exception of northerly winds prevailing during the month of February. The average annual wind speed is 12.3 miles per hour. Wind speeds average 14.1 miles per hour during the months of March and April (NOAA, 1988).

2.3 HYDROLOGY

As mentioned in subsection 2.1, the HRI facility lies within the tributary basin for the Arkansas River. The Arkansas River Valley is characterized by very little relief. Surface water from the HRI facility drains to tributaries of Chisolm Creek, a tributary to the Arkansas River. Chisolm Creek has been channelized south of 21st Street (see in Figure 2-1) and receives only local drainage at this location (Bevans, 1989). This concrete-lined channel, the Wichita Drainage Canal, originates south of the intersection of 21st and Wabash and receives flow from a tributary to Chisolm Creek. This tributary receives surface runoff from a highly industrialized area which includes several heavy industries and the Union Pacific and Chicago-Rock Island rail yards, northwest of HRI. From this point, the channel proceeds southeast where flow from Chisolm Creek and the East Fork of Chisolm Creek are received.

The Wichita Drainage Canal primarily flows south between the northbound and southbound lanes of Interstate 135 in the vicinity of HRI, and is utilized for flood control along the Chisolm Creek drainage basin. The canal receives streamflow from Dry Creek and Gypsum Creek, six miles south of HRI, prior to discharging to the Arkansas River, approximately seven miles south of the HRI facility.

Surface water runoff from the central portion of the HRI (see Figure 2-2) property primarily flows north and west (Trombold, 1984). Runoff flows parallel to the northern boundary of the property, then flows south along the western boundary of the property. Runoff from the southcentral and southwestern portions of the property flows south toward a berm which provides containment for above ground oil storage tanks on the adjacent Derby Refinery property, then parallel to the



LEGEND

1. PROCESS AREA STORAGE TANKS
2. WASTE BLENDING AND DRUM PROCESSING
3. FORMER DRUM PROCESSING AREA
4. PROCESS AREA TRUCK BAY
5. SPARGING AREA
6. HOT ROOM
7. ELEVATED TANK STORAGE AREA
8. NONREGULATED WASTE STORAGE AREA
9. SOLIDS DRYER AREA
10. DRUM CRUSHER
11. CRUSHED DRUM ROLL-OFF BOXES
12. WARM ROOM
13. DOCK AREA
14. DRUM STORAGE WAREHOUSE (BUILDING C)
15. CORROSIVE WASTE STORAGE AREA
16. DRY SOLIDS GONDOLA
17. LABORATORY SAMPLE STORAGE AREA
18. VEHICLE FUELING TANKS
19. OPEN AREA ALONG SOUTHWEST CORNER
20. BUILDING J
21. BUILDING I
22. CONCRETE VAULT
23. OPEN AREA NORTH OT BUILDING I

SOURCE: FACILITY MAP FOR HYDROCARBON RECYCLERS INC. PREPARED BY REISS & GOODNESS ENGINEERS.

N

NO SCALE

CAD DWG NO:C0000522
DATE:9-24-90 KIN
PLOT SCALE:1=1

FIGURE 2-2
SITE PLAN AND FACILITY LAYOUT
HRI FACILITY
RCRA FACILITY ASSESSMENT

southern border of the property. This runoff then flows south in a manner similar to runoff from the northern and central portions of the property.

Surface water runoff from the property northeast of the HRI facility, on which operations were conducted by the former Service Chemical Supply Company (SCSC), flows north to a drainageway, then flows east to discharge to the Wichita Drainage Canal. The drainageway also collects surface water runoff from the Union Pacific Railroad property which lies north of the HRI facility and former SCSC property.

2.4 SOILS AND GEOLOGY

The surface soils characteristic to the HRI property have been studied and mapped by the U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS). The predominant soil type found at HRI is an urban land, Tabler complex (USDA, 1976). Tabler soil is described by SCS as a fine montmorillinitic thermic complex. From 0 to 9 inches below land surface, the soil is characterized as a silty clay loam (ML or CL by Unified Classification) with low shrink-swell potential and a hydraulic conductivity range between 0.2 and 0.6 (in/hr) [1.41×10^{-4} and 4.23×10^{-4} centimeters per second (cm/s)] (USDA, 1976). Hydraulic conductivity increases to greater than 0.6 in/hr (4.23×10^{-4} cm/sec) and shrink-swell potential is high between nine and sixty inches below land surface (USDA, 1976).

The general stratigraphy of Sedgwick County is detailed in Table 2-2. Rocks that crop out in Sedgwick County are sedimentary in origin and range in age from Permian to Recent. The oldest rocks that crop out in the county are from the Wellington Formation of the Permian System. This portion of the Wellington Formation consists of mostly calcareous gray and blue-grey shale containing several thin beds of impure limestone, and thin beds of gypsum (Lane, 1965). These rocks are the bedrock surface for the eastern two-thirds of the county, which includes the HRI facility. Most of this bedrock is shale, which is easily eroded. Unconsolidated, colluvial, fluvial, and eolian deposits occur over the bedrock.

In the vicinity of the HRI facility, the overlying deposits are characterized by 10 to 15 feet of silt and clay (HWS, 1989) underlain by alluvium and terrace deposits of Wisconsin to Holocene age (primarily fine-to-coarse sand and fine-to-coarse gravel with clayey silt in the upper portion) (Bevans, 1989). These deposits range in depth

Table 2-2. General Section of Geologic Formations * in Sedgwick County, Kansas, and Their Water-Bearing Properties.

	Stratigraphic Units Used in This Report	Maximum Thickness (feet)	Physical Character	Water Supply
Neocene System Pleistocene Series Upper Pleistocene Subseries	Dune sand (Recent)	5	Composed of fine to medium silty sand.	Lies above the water table and does not yield water to wells.
	Alluvium and terrace deposits (Wisconsin to Recent)	45	Composed of fine to coarse sand and fine to very coarse arkosic gravel containing only minor amounts of silt and clay that grade upward into clayey silt. Clay balls up to 1 foot in diameter are common in the sand and gravel.	Constitutes the most widely used aquifer in the county and yields large supplies of very hard water to many wells. Wells yielding up to 2,000 gpm can be developed locally. Adjacent to the Arkansas River the water is too highly mineralized for many uses.
	Colluvium (Illinoian to Recent)	30	A heterogeneous mixture of silt, clay, sand, gravel, and bedrock fragments deposited by slope processes.	Generally above the water table and thus yields no water to wells. Where deposits are thick and contain sand and gravel lenses, wells yielding a few gpm may be possible but would be subject to failure in dry years.
	Loess (Illinoian to Recent)	74	Wind-deposited tan to pink-tan, calcareous silt, containing zones of caliche, containing zones of caliche nodules and some sandy zones.	Generally above water table, but locally the basal part is saturated and the sandy zone may yield some water to wells.
	Terrace deposits (Illinoian)	75	Composed of fine to coarse sand and fine to coarse arkosic gravel that grades upward into sandy silt. Sand and gravel beds locally contain silt and clay lenses, and clay balls up to 1 foot in diameter are common.	Well yields of 500 gpm of good quality water are generally available from the deposits, and locally yields up to 1,000 gpm can be obtained.

Table 2-2. General Section of Geologic Formations * in Sedgwick County, Kansas, and Their Water-Bearing Properties (Continued).

	Stratigraphic Units Used in This Report	Maximum Thickness (feet)	Physical Character	Water Supply
Lower Pleistocene Subseries	Undifferentiated deposits (Nebraskan and Kansan)	157	Composed of light tan to light gray, commonly sandy, silt and clay, and fine to coarse arkosic gravel. Locally contains a lenticular bed of volcanic ash and the Pearlette ash bed of late Kansan age.	Yield small quantities of good quality water to wells in the Arkansas Valley that are screened in multiple porous zones and penetrate the complete section of unconsolidated rocks. The water is highly mineralized locally near the Arkansas River. Where present in the uplands west of the Arkansas Valley, well yields of up to 50 gpm are possible locally.
Pliocene Series	Ogallala Formation	150±	Composed of lenticular beds of calcareous, gray to pink-tan silt and clay, fine to coarse sand, and fine to coarse gravel. The sediments reflect two sources: arkosic sand and gravel beds derived from the west are interfingered in the northern part of the county with sand, and gravel beds composed of gray to tan quartz and ironstone derived from Cretaceous rocks to the north. In subsurface only.	Contributes large supplies of good quality water to many municipal, irrigation, and industrial wells screened in multiple porous zones, and penetrates the complete section of unconsolidated rocks.
Permian System Permian Series	Ninnescah Shale	175±	Composed of alternating beds of brownish-red silty shale and siltstone, and a few thin beds of gray-green silty shale in lower part. Some gypsum is present as thin, cross-cutting and intersecting vein fillings.	Yields small quantities of water to many stock and domestic wells in the western part of the county. Water obtained from the weathered zone in the formation is generally of good quality. Water from deeper zones is generally highly mineralized but usable.

Table 2-2. General Section of Geologic Formations * in Sedgwick County, Kansas, and Their Water-Bearing Properties (Continued).

	Stratigraphic Units Used in This Report	Maximum Thickness (feet)	Physical Character	Water Supply
Permian Series	Wellington Formation	550±	Calcareous gray and blue shale containing several thin beds of impure limestone and thin beds of gypsum and anhydrite. Some beds of maroon and gray-green shale near top of formation. The thick Hutchinson Salt Member is present near the middle of the formation in the western part of the county.	Yields small quantities of highly mineralized water to many stock and domestic wells east of the Arkansas River Valley and in the south-central part of the county. Moderately large water supplies of as much as 350 gpm are available from solution zones in gypsum beds near east county line. The water is highly mineralized but usable.

* As classified by the State Geological Survey of Kansas

SOURCE: "Geohydrology of Sedgwick County, Kansas". Kansas Geological Survey Bulletin 176. December 1965. Table 2, pg. 16.

from 30 to 40 feet below land surface at HRI, with the Wellington Formation bedrock encountered immediately below at an approximate elevation of 1275 feet above msl. The Wellington Formation is approximately 200 feet in thickness in the vicinity of the HRI facility.

2.5 HYDROGEOLOGY

The terrace and alluvium deposits are the most widely used source of ground water in Sedgwick County (Bevans, 1989). In general, the saturated unconsolidated deposits, such as the alluvium and terrace deposits, yield much greater quantities of water than saturated bedrock in Sedgwick County. The fine-grained consolidated nature of the bedrock (weathered Permian shale) hinders the movement of water and limits recharge and yields to wells (Bevans, 1989).

Although the alluvial deposits are stratified and lenticular, sand and gravel beds within the deposits containing ground water are interconnected, and the complete sequence of silt, clay, sand, and gravel beds responds to long-term withdrawals of ground water as a single aquifer (Lane, 1965). The saturated thickness of the unconsolidated Neogene sediments (alluvium and terrace deposits) in the vicinity of the HRI facility are approximately 20 feet.

Precipitation is the primary source of recharge in the Arkansas River Valley with the quantity of recharge at a particular location affected by local conditions. The estimated net average recharge to the unconsolidated deposits in the Arkansas Valley is 20 percent of the annual precipitation (about six inches) in years of normal rainfall (Bevans, 1965). In much of the Arkansas River Valley in areas adjacent to the principal streams, the depth to ground water is less than 10 feet below land surface.

Ground water can also be obtained in small yields from the weathered zone of the Wellington formation, though it may be mineralized where solution has occurred within the weathered shale. In the area underlying the Arkansas River Valley, the Hutchison Salt Member in the middle of the Wellington Formation has been removed by dissolution processes resulting in solution cavities and greatly fractured collapsed beds. This portion of the formation, sometimes referred to as the Wellington aquifer, can yield large quantities of high-concentration saline water (Bevans, 1989).

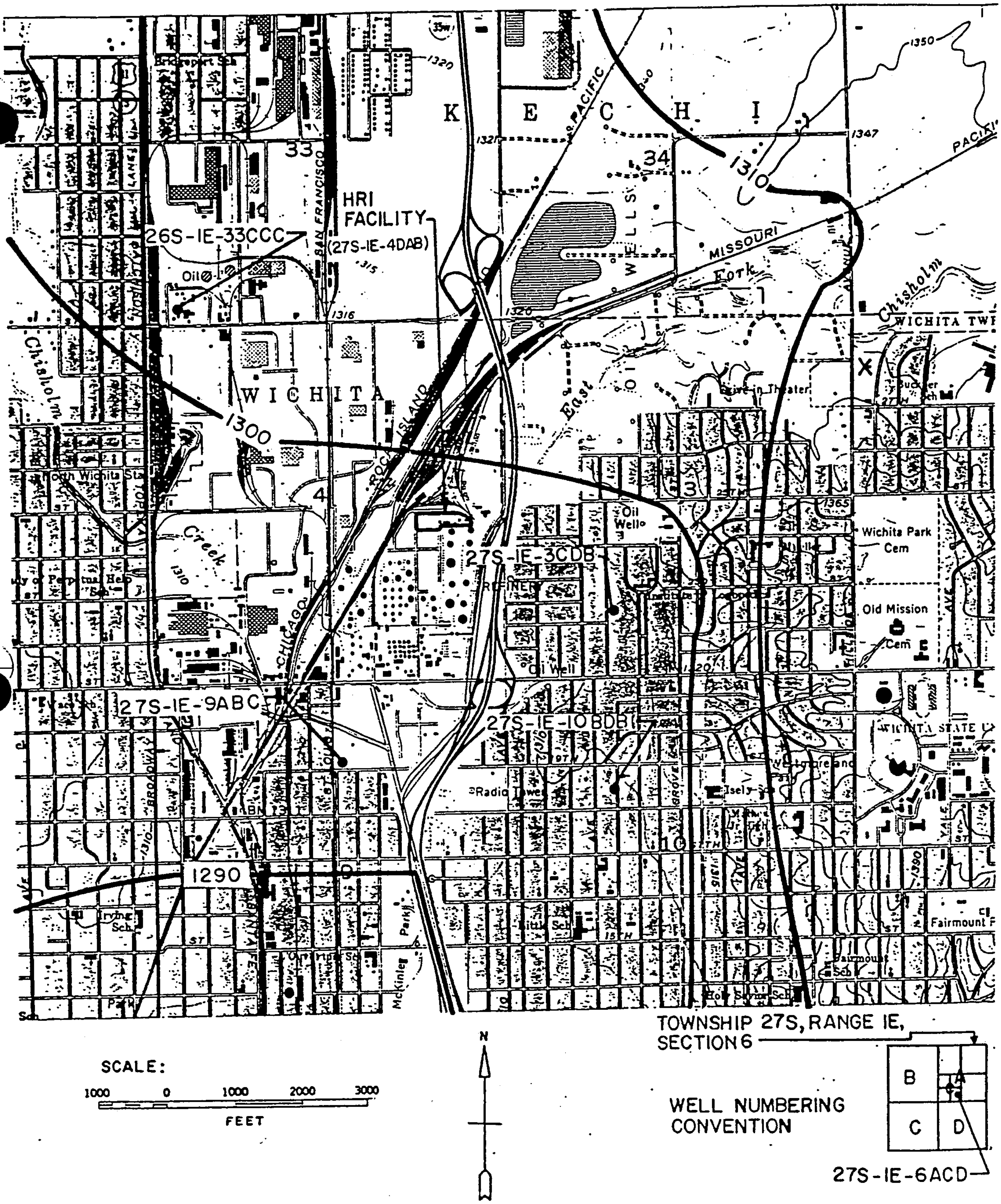
Quantitative hydrogeologic parameters have been estimated from ground water investigations conducted in 1987 and 1988 at industrial properties located in the Wichita North Industrial District (WNID). WNID is an industrial area bounded by Broadway to the west, Interstate 135 to the east, and 37th Street North and 21st Street North to the north and south, respectively. In the area of the HRI facility, transmissivity of the alluvium was estimated as 50,000 gallons per day per foot (6.68 x 10^{-4} m^2/s). At the Derby Refinery, immediately south of the HRI facility, hydraulic conductivities for the silt and clay and Pleistocene alluvium were estimated at 200 and 1000 gallons per day per square foot (9.43 x 10^{-3} and 4.72 x 10^{-2} cm/s), respectively (HWS, 1989).

In the Arkansas Valley, ground water flows primarily down the valley parallel to the river (Bevans, 1989). In the vicinity of the HRI facility, the ground water flow is generally to the south, paralleling the Arkansas River and Chisolm Creek. Tributaries to Chisolm Creek drain the area around HRI. Approximate ground water contours in the vicinity of the HRI facility are shown on Figure 2-3.

2.6 GROUND WATER USAGE AND WATER QUALITY

Identified existing wells within a one mile radius of the HRI facility shown on Figure 2-3 are detailed in Table 2-3. Usage for wells within a one-mile radius includes observation and monitoring of ground water, industrial water usage, and domestic supply which is generally limited to lawn and garden irrigation (Bevans, 1989).

Two wells (labeled as HRI-2 and HRI-3 on Figure 2-4) are utilized for ground water monitoring on the HRI property. Several other wells near or adjacent to the facility used for monitoring and domestic supply are also shown on Figure 2-4. Information on these wells was compiled through the following sources: Lane, 1965; Bevan, 1989; HWS, 1989; and the KDHE Well Inventory System. Well RSC-1, identified on Figure 2-4 as a well on the adjacent property formerly occupied by SCSC, was reportedly utilized for still cooling water during operations previously conducted by the Reid Supply Company (Trombold, 1984). It is unknown whether this well is still accessible or productive. Monitoring wells UPR-1 and UPR-2 on Figure 2-4 were installed by Union Pacific on the same property to monitor ground water quality south of the drainageway which separates these two properties.



NOTE: CONTOUR INTERVAL IS 10 FEET.

SOURCE: U.S. GEOLOGICAL SURVEY, 7.5 MINUTE SERIES (TOPOGRAPHIC) WICHITA EAST QUADRANGLE, KANSAS, 1961 AND "WATER RESOURCES OF SEDGWICK COUNTY, KANSAS", HUGH E. BEVANS, USGS, 1989, PLATE 2.

FIGURE 2-3
EXISTING WELLS AND GROUND WATER CONTOURS FOR THE HRI AREA
HRI FACILITY
RCRA FACILITY ASSESSMENT

Table 2-3. Record of Selected Existing Wells Located Within a 1-Mile Radius from the HRI Facility.***

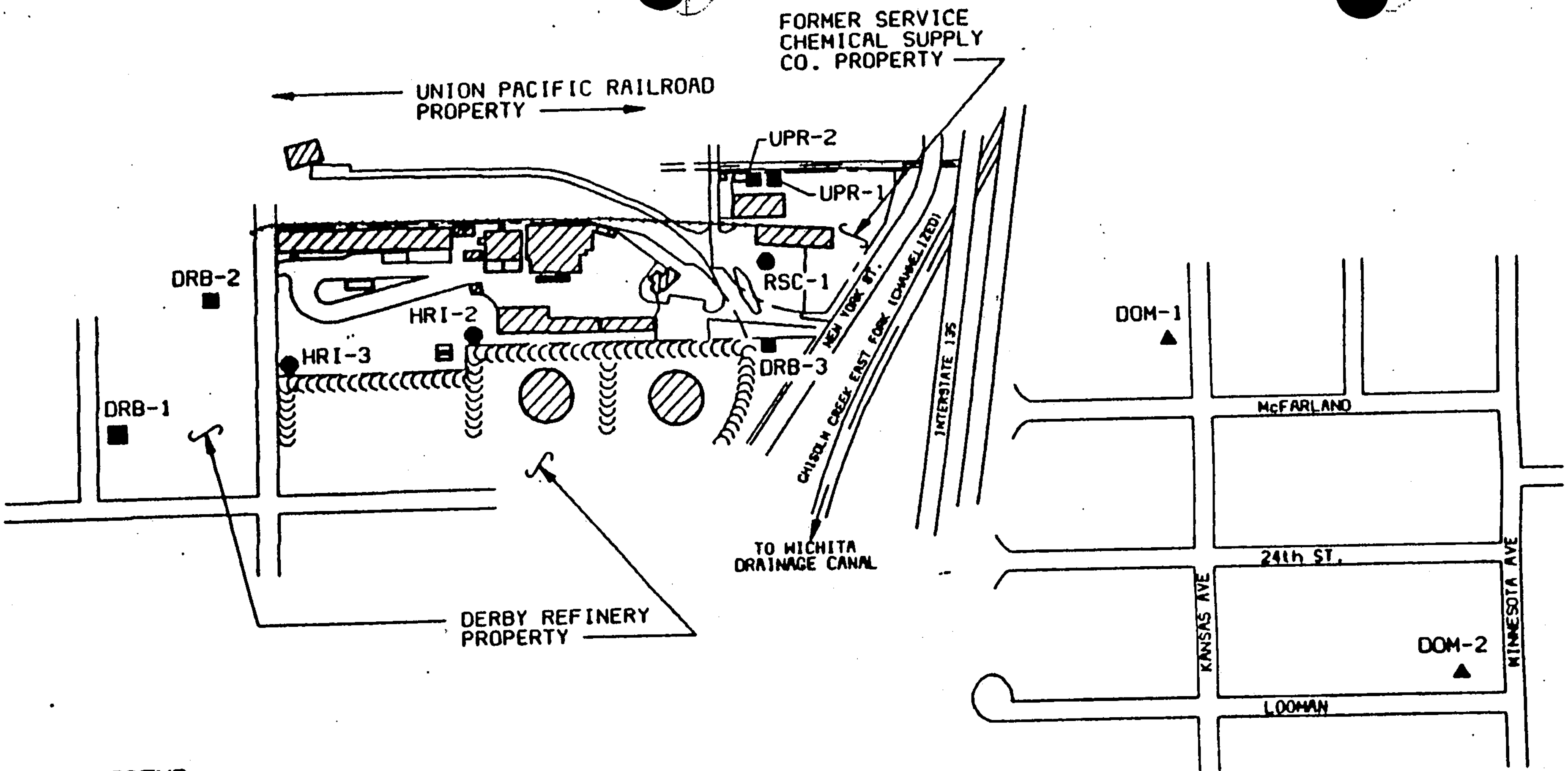
Well No.	Water Use*	Depth of Well (ft.)	Principal Water-Bearing Units: Character of Material	Principal Water-Bearing Units: Geologic Source**	Date of Measurement (m-d-y)	Land Surface Elevation (ft.)	Depth to Ground Water (ft.)	Ground Water Level (ft.above msl)	Remarks
26S-1E-33CCC	O	17.0	Sand	Q1,Pw	12-06-85	1,315	9.0	1,306	--
27S-1E-3CDB	L&G	25.0	Gravel	Qal	12-11-85	1,313	16.1	1,297	Yields 50 gpm
27S-1E-9ABC	L&G	35.0	Sand	Qal	12-12-85	1,305	12.9	1,292	Yields 80 gpm
27S-1E-10BDB	L&G	40.0	Sand	Qal	12-12-85	1,310	16.8	1,293	--

Source: "Water Resources of Sedgwick County, Kansas". U.S. Geological Survey Water-Resources Investigation Report 88-4225. 1989.

* Use: L&G, lawn and garden; O, observation.

** Geologic Source: Qal, alluvium and terrace deposits of Wisconsin to Holocene age; Q1, loess deposits; Pw, Wellington Formation.

*** The coordinate location for the HRI facility is 27S-1E-4DAB, as shown on Figure 2-3.

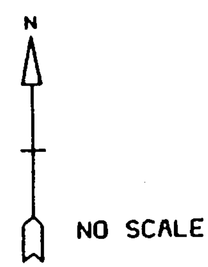


LEGEND

DRB-1 ■ SHALLOW MONITORING WELL SCREENED AT OR WITHIN 5 FEET OF THE WATER TABLE

HRI-2 ● DEEP MONITORING WELL SCREENED AT OR WITHIN 5 FEET OF THE BASE OF THE AQUIFER

DOM-1 ▲ DOMESTIC WELL, CONSTRUCTION DETAILS UNKNOWN



SOURCE: "WICHITA NORTH INDUSTRIAL DISTRICT, PHASE 1, PART 1 - INITIAL SITE ASSESSMENT". APPENDIX B HWS TECHNOLOGIES INC. FEBRUARY 24, 1989.

CAD DWG NO:C0000529
DATE:08-14-90 AND
PLOT SCALE:1=1

FIGURE 2-4
EXISTING WELLS IN THE VICINITY OF HRI
HRI FACILITY
RCRA FACILITY ASSESSMENT

While the unconsolidated deposits are generally reported to be the best sources of ground water in Sedgwick County for both quality and quantity of water (Bevans, 1989), local areas of saline water in the unconsolidated alluvium and terrace deposits may occur from dissolution of soluble minerals and infiltration of sodium chloride water from the Arkansas River. Iron and manganese concentrations may also be elevated locally in these deposits and has been known to cause well "fouling" immediately south of HRI (HWS, 1989). Volatile organic compounds (VOCs) have been detected in samples collected during ground water investigations conducted by KDHE and in samples collected by local industries in the WNID. VOCs were detected in samples collected from wells screened at the base of the aquifer at the shale interface, and in the overlying saturated unconsolidated deposits.

Within the WNID, VOCs have been reported as the most wide spread contaminant (HWS, 1989). Analytical results for ground water samples collected in 1987 from the wells identified on Figure 2-4 are given in Table 2-4. In addition to the analytical results in Table 2-4, ground water samples have been periodically collected at the HRI facility and analyzed by KDHE, most recently during a remedial investigation (RI) of the WNID site.

In addition to the analytical results provided in Table 2-4, analytical results are available for ground water samples collected from wells HRI-2 and HRI-3 on April 5, 1989 during the WNID RI. Trichloroethethylene and carbon tetrachloride were detected in a ground water sample collected from HRI-2 at concentrations of 1,000 and 550 micrograms per liter (ug/l), respectively. The same compounds were detected in a sample from HRI-3 at concentrations of 3.5 and 14 ug/l, respectively. In addition, the following compounds were also detected in HRI-3: chloroform, 7.7 ug/l; tetrachloroethylene, 1.1 ug/l; and 1,2-dichloroethylene, 0.4 ug/l.

A well identified as an active water well by HRI was sampled by KDHE on August 14, 1985. No VOCs were detected in the sample collected from this well. It is unknown whether this well is the well previously identified for still cooling water supply. A domestic well east of the HRI facility, near Kansas Avenue and McFarland (see Figure 2-4 and Table 2-4), was sampled for VOCs. Analytical results for a sample collected from this well, DOM-1, showed the following contaminants: 1,2 dichloroethane, 14.9 ug/l; toluene, 1.0 ug/l; and xylenes, 2.3 ug/l.

Table 2-4. Analytical Results for Volatile Organic Compound Concentrations in Ground Water Samples Taken From Existing Wells in the Vicinity of HRI.

		Concentration (ug/l):									
Volatile Organic:	Detection Limit (ug/l)	HRI-2** (ug/l)	HRI-3** (ug/l)	RSC-1** (ug/l)	UPR-1* (ug/l)	UPR-2* (ug/l)	DRB-1* (ug/l)	DRB-2* (ug/l)	DRB-3* (ug/l)	DOM-1*** (ug/l)	DOM-2*** (ug/l)
Chloromethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	1.2	ND	ND	ND	ND	ND	ND	ND.	ND	ND	ND
Vinyl Chloride	0.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	3.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	0.9	ND	2.6	ND	66.0	27.0	ND	ND	1.2	ND	ND
1,1-Dichloroethene	0.6	ND	26.5	ND	365.0	18.0	ND	ND	191.0	ND	ND
1,1-Dichloroethane	0.5	ND	4.4	ND	86.0	15.0	ND	ND	91.0	ND	ND
trans &/or cis 1,2-Dichloroethene	0.5	ND	76.4	1.7	ND	18.0	ND	ND	53.0	ND	ND
Chloroform	0.5	ND	147.0	17.5	15.0	ND	ND	4.9	1.5	ND	ND
1,2-Dichloroethane	0.6	ND	ND	ND	59.0	ND	0.6	ND	ND	14.9	ND
1,1,1-Trichloroethane	0.7	ND	122.0	ND	4755.0	97.0	0.6	ND	960.0	ND	ND
Carbon Tetrachloride	0.7	ND	635.0	84.4	ND	ND	ND	17.0	ND	ND	ND
Bromodichloromethane	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	0.4	ND	ND	ND	ND	ND	ND	ND	2.5	ND	ND
trans 1,3-dichloropropene	0.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.6	8.1	6260.0	16.5	ND	13.0	2.1	ND	450.0	ND	ND
Benzene	0.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis 1,3-Dichloropropene	0.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1.1	ND	504.0	2.6	ND	26.0	ND	ND	78.0	ND	ND
Toluene	0.4	ND	0.9	0.9	190.0	151.0	ND	ND	ND	1.0	ND
Chlorobenzene	0.4	ND	ND	ND	ND	ND	ND	ND	ND	~~ND~~	ND
Ethylbenzene	0.7	ND	ND	ND	ND	11.0	ND	ND	ND	ND	ND
meta-Xylene	0.6	ND	ND	15.1	ND	ND	ND	ND	ND	2.1	ND
ortho &/or para-Xylene	0.6	ND	ND	23.1	250.0	214.0	ND	ND	ND	2.0	ND
1,3-Dichlorobenzene	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2 &/or 1,4-Dichlorobenzene	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Key - HRI-1 - Monitoring Well Utilized by Hydrocarbon Recyclers, Inc.
DRB-1 - Monitoring Well by Derby Refinery, 1980-1983
UPR-1 - Monitoring Well Installed by Union Pacific on Former SCSC Property
DOM-1 - Domestic Well
ND - Not Detected

* Well screened at or within 5 ft. of the water table
** Well screened within 5 ft. of the base of the aquifer
*** Screened depth unknown

Source: "Wichita North Industrial District, Phase I - Part 1 - Initial Site Assesment". HWS Technologies Inc. February 24, 1989. and KDHE GC/MS Analysis Reports for Ground Water Samples Collected May 21, 1987. Lab Nos. 7037440, 50, & 60.

Table of Contents

List of Attachments

N-1 Air Emission Standards for Process Vents

N-1a Applicability

The Clean Harbors Kansas, LLC(CHK) facility stores, treats, and recovers for recycling hazardous waste and hazardous waste fuel. (For a more complete description of hazardous waste management activities at CHK, refer to Section B, Facility Description.) The hazardous waste management units at CHK are subject to the 40 CFR Part 270 permitting requirements by 265.1 (b) and 266.34(c) and are allowed to operate under 270.10 (e) according to interim status standards until a permit is issued. However, there are no regulated units currently operated at the CHK facility subject to the 40 CFR 264 Subpart AA process vent emissions standards.

N-2 Air Emissions Standards for Equipment Leaks

N-2a Applicability

The CHK facility stores, treats and recovers for recycling hazardous waste and hazardous waste fuel. The waste lines and equipment are used at CHK to transfer hazardous waste liquids between or from waste storage tanks, or miscellaneous exempt units, or from or to trucks for off site receipt or shipment. It is assumed, based on knowledge of process, that the hazardous waste liquids or gases handled in these lines at the facility potentially contact hazardous waste in excess of ten (10) percent total organic carbon (TOC) and are therefore subject to these standards. Appendix N-A, Facility and Process Drawings, contains diagrams of the pertinent equipment and piping in use at CHK.

A majority of the equipment at the CHK facility is potentially in ten (10) percent, or greater, TOC hazardous waste liquid or gas service except for water, air, or fire suppressant lines. These lines are identified separately from all other lines by their color or labelling.

N-2b Pumps in Light Liquid Service

All pumps at the CHK facility are assumed to be in light liquid service at some time due to the varied nature of the wastes managed at the facility. Because the exact composition of the waste stream varies, a heavy liquid service designation is difficult to sustain during actual operations. Therefore, all pumps at the facility are potentially subject to light liquid service standards and will be monitored monthly to detect leaks using the method specified in 264.1063 (b) unless exempted by a classification of no detectable emissions.

All pumps at the facility are subject to regular RCRA inspections, as described in Section F, Inspection Plan. These will occur at a minimum of once per week to locate indications of liquids dripping from pump seals. If there are indications that liquids are dripping from the pump seal (e.g., staining of surrounding substrate, visible liquids), a leak is considered to be detected.

When a leak is detected, a first attempt at repair shall be made within five (5) calendar days and a permanent repair attempted within fifteen (15) calendar days of detection unless the standards of 264.1059 are met.

There are currently no pumps in operation at the CHK facility with a dual mechanical seal that includes a barrier fluid. When these types of pumps are installed, CHK will comply with the requirements of 40 CFR 264.1052 (d) if these pumps are to be exempted from monitoring requirements.

There are several pumps at the CHK facility which are eligible for the "no detectable emissions" exemption from 264.1052 (a), (b), and (d) with an instrument reading of 500 ppm or less above background. These pumps have no externally actuated shaft which penetrates the pump housing, and operate with no detectable emissions (i.e., less than 500 ppm measured by the method specified in 264.1063 (c)) and have been initially tested for compliance with this standard and will be tested annually for leaks above 500 ppm. Pumps which are eligible for the "no detectable emissions" exemption will be tested when requested by the Regional Administrator, as specified in 40 CFR 264.1052(e)(3).

N-2c Compressors

There are no compressor units subject to air emission standards at the CHK facility.

N-2d Pressure Relief Devices

There are no pressure relief devices installed on equipment subject to the 40 CFR Subpart BB regulations currently being operated in hazardous waste gas/vapor or liquid service at CHK.

N-2e Sampling Connection Systems

All sampling systems at the CHK facility are of the *in situ* type, are used in-line, and are not subject to subparagraphs (a) and (b) of 264.1055. These systems typically consist of a valve with an open ended line. This equipment is subject to the leak emissions standards and is included in the monitoring plan as required by 264.1056 or 264.1057. This system is operated in method consistent with the basis for the standards contained in 264.1055 (a) and (b) in that any purged waste prior to sampling is returned to the process.

N-2f Open-ended Valves or Lines

All open-ended valves and lines at the CHK facility are equipped with caps or plugs intended to seal the open end when the line or valve is not in service. All double block lines at the facility (i.e., lines with two valves) are operated such that the valve on the hazardous waste stream side is closed before the second valve is closed.

N-2g Valves in Gas/Vapor Service or in Light Liquid Service

All valves at the CHK facility are assumed to be in ten (10) percent or greater organic content light liquid gas/vapor service at some time due to the varied nature of the wastes managed at the facility. Because the exact composition of the waste streams varies, a heavy liquid service designation is difficult to sustain during actual operations. Therefore all valves at the facility are potentially subject to light liquid service requirements and will be treated as being in light liquid service for the purpose of complying with the air emission regulations. This designation assures that CHK complies with the requirements of 264.1063 (g).

Valves will be monitored monthly to detect leaks using the method specified in 264.1063 (b) unless exempted according to 264.1061 or according to 264.1057 (f), (g), or (h). If an instrument reading in excess of 10,000 ppm is measured during monitoring, a leak subject to the repair provisions of this program is detected.

When a leak is detected, a first attempt at repair shall be made within five (5) days and a permanent repair attempted within fifteen (15) calendar days of detection unless the standards of 264.1059 are met. First attempts at repair shall include tightening of bonnet bolts, replacement of bonnet bolts, tightening of packing gland nuts, and/or injection of lubricant into lubricated packings.

There are no valves in use at the CHK facility eligible for the no detectable emission exemption. Similarly, there are no valves designated as unsafe-to-monitor.

There are numerous valves designated as difficult-to-monitor pursuant to this paragraph on the existing units which were in operation prior to June 21, 1990. These valves have been determined to be difficult to monitor due to their location or elevation as specified in 264.1064 (h) (2). All valves currently designated as difficult-to-monitor are so designated in the log because of their location at or above two meters above a supported surface. Valves that have been identified as difficult-to-monitor are identified in the tables in Appendix N-D by the identification number P-XXXU/PXXXU or M-XXXU/MXXXU. These valves will be monitored according to this written plan for obtaining access to these valves for monitoring at a minimum of once per year.

N-2h Pumps & Valves in Heavy Liquid Service; Flanges, and Other Connectors

There are no pumps or valves designated in heavy liquid service at the CHK facility. Flanges and other connectors shall be monitored within five (5) calendar days by the method specified in 264.1063 (b) if evidence of a potential leak is found by visual, audible, olfactory, or other method. These potential leaks will normally be initially identified by observation of dripping or accumulated liquids or of stained substrate during scheduled inspections of the tank system and associated piping.

When a leak is detected, a first attempt at repair shall be made within five (5) calendar days and a permanent repair attempted within fifteen (15) calendar days of detection unless the standards of 264.1059 are met.

The practices specified in paragraph 264.1057 (e) shall constitute a first attempt at repair.

N-3 Delay of Repair

In the event that any repair of a connection, pump, or valve associated with a process unit must be delayed beyond fifteen (15) calendar days because it requires the shutdown of the hazardous waste management unit, that repair shall be completed during the next unit shutdown.

A delay of any other repair of a connection, pump, or valve will extend beyond the (15) days only if the equipment for which a leak has been detected can be isolated from the system and no longer contacts hazardous waste liquid or gas/vapor in concentrations exceeding ten (10) percent by weight.

N-3a Valves:

In delaying a repair of a valve beyond fifteen (15) calendar days, CHK will follow procedures as specified by 40 CFR 1059. CHK will determine whether or not the emissions from an immediate repair would exceed those likely to result from the procedures that would be used if repair could be delayed. Delay of repair will only occur when the emissions would be reduced by the delay, when the equipment is isolated from the hazardous waste management unit, or when the repair is technically infeasible without a hazardous waste management unit shutdown (in this case, the repair shall occur before the end of the next hazardous waste management unit shutdown). Delay of repair of a valve beyond the next hazardous waste management unit shutdown will only occur if valve assembly replacement is necessary during the shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before supplies were depleted. Delay of repair beyond the next hazardous waste management unit shutdown will only occur if the next hazardous waste management unit shutdown occurs sooner than six months after the first hazardous waste management unit shutdown.

CHK will comply with 40 CFR 264.1059 when repair of a valve is delayed. If delay of repair is performed in accordance with 40 CFR 264.1059(c)(2), the purged material collected during the repair will be destroyed or recovered in a control device complying with 40 CFR 264.1060, and to 40 CFR 1033.(h), 1033(i), and/or 1033(j).

Repairs of valves may be delayed at CHK beyond the first unit shutdown in the event that the repair requires spare parts which were well stocked prior to the shutdown but were depleted and unavailable at the time of shutdown. Additional delays beyond the second unit shutdown will only occur if the second shutdown occurs within six (6) months after the first.

N-3b Pumps:

Repairs of pumps will be delayed by CHK beyond fifteen (15) calendar days if the repair requires the use of a dual mechanical seal and barrier fluid system. Such delayed repairs of pumps will be completed as soon as practicable but no later than six (6) months from the time the leak was detected.

N-4 Alternative Standards - Valves in Gas/Vapor Service or Light Liquid Service:

N-4a Percentage of Valves Allowed to Leak

All valves at the CHK facility in light liquid or gas service are identified on the attached drawings, are associated with hazardous waste management units, are subject to 264.1057, and are eligible for this alternative standard. CHK elects to meet the two (2) percent standard for valves by meeting the following requirements of 264.1061 (b) (1) - (3).

A copy of the letter notifying the Regional Administrator of CHK's implementation of this alternative standard is included in Appendix N-B.

A performance test using the method specified in 264.1063 (b) was performed on all identified valves at the facility on December 17, 1990. No leaks greater than 10,000 ppm were detected in any valves. This test shall be repeated annually and at the request of the Regional Administrator.

Future annual performance tests shall detect a leak if readings exceed 10,000 ppm. If a leak is detected, it will be repaired in accordance with 264.1057 (d) and (e).

Future annual performance tests shall calculate the percentage leak rate by dividing the number of valves with readings in excess of 10,000 ppm by the total number of valves eligible. The initial performance test conducted in December 1990 did not detect any leaking valves. The resulting leak rate for the initial performance test of zero (0) percent meets the two (2) percent standard.

Should CHK decide to discontinue meeting this alternative standard, the Regional Administrator will be notified.

N-4b <u>Skip Period Leak Detection and Repair</u>

CHK does not elect to meet this alternative standard for valves in the regulated service at this time. Should CHK elect to meet this alternative standard in the future, the Regional Administrator shall be notified and the program revised to comply with 264.1062 (b).

N-5 Test Methods and Procedures

The test methods used by CHK comply with 264.1063. Relevant instrument and method information is included in this document as Appendix N-C.

Monitoring performed at CHK is done in accordance with Method 21 as set forth in 40 CFR Part 60.

The instrument currently being used for monitoring is a Foxboro OVA Model 108; other instruments may be utilized depending on performance and instrument availability. The performance criteria for this instrument against Method 21 requirements are well documented and are included in Appendix N-C. The instrument is calibrated according to Method 21 requirements and the results documented as part of the monitoring. Examples of calibration forms for documenting this information appear in Appendix N-C. Calibration gases conform to Method 21 requirements and are documented with each calibration (see Appendix N-C). Future monitoring procedures, monitoring equipment, and calibration of that equipment shall comply with 40 CFR 264.1063.

N-5a Testing for No Detectable Emissions

The only equipment at CHK designated as meeting the "no detectable emission" standard are pumps meeting the criteria of 264.1052 (e). These pumps will be monitored annually following the procedures of 264.1052 (b). The background levels will be recorded as set forth in Method 21 in determining the leakage rates from these pumps.

When monitoring for leaks, the instrument probe is traversed around all potential leak sources from these pumps as close to the interface as possible as described in Method 21.

The background value shall be subtracted from the highest reading on each pump in determining compliance with the 500 ppm level for no detectable leakage.

N-5b Testing Organic Concentration

All identified hazardous waste equipment in waste service contacts ten (10) percent or greater liquid wastes. CHK has made this determination based on knowledge of the waste streams handled by CHK and complies with 264.1063 (g). Additional testing using methods stipulated by paragraphs 264.1063 (d) (1) and (2) for this initial designation is not required at CHK Since all identified hazardous waste equipment has been designated as being in light liquid, ten (10) percent or greater organic liquid waste service, documentation of this determination based on knowledge of process is not required.

Should CHK determine that a system can be designated as contacting less than ten (10) percent organic concentration streams, or the Regional Administrator does not agree that a stream contains less than ten (10) percent by weight organics, the determination will only be revised after following the procedures in 264.1063 (d) (1) or (2).

Any samples used to determine the percent organic content shall be representative of the highest total organic content hazardous waste that is expected to be handled in or contact the equipment.

Since all equipment at the CHK facility has been designated in light liquid service, no waste constituent vapor pressure determinations are necessary.

No control device efficiency tests are performed at the CHK facility since emissions reductions using control devices are not required by 264.1034.

N-6 Recordkeeping Requirements

CHK is subject to the leak detection and repair requirements only and has no closed vent or control devices. The recordkeeping provisions of this paragraph for the Subpart BB program only apply to CHK. Although CHK is owned by Clean Harbors and is part of a multiple facility system subject to these standards, CHK elects to maintain the required records on site. Additional information on this program for CHK may also be maintained at Clean Harbors corporate office in Braintree Massachusetts.

N-6a Equipment Information

The identification numbers for equipment subject to leak detection and repair requirements and associated hazardous waste management units appear in the Tables in Appendix N-D. The numbers separate the equipment into two categories. Valves and connections are identified with PXXX number, pumps are identified by a MXXX number. These numbers are unique to each piece of equipment.

Drawings of the process and facility plot plan are included in Appendix N-A. These drawings also show each piece of equipment subject to these standards and their identification numbers. The exact location of each piece of equipment is identified for monitoring and repair tracking from this information.

The tables in Appendix N-D include equipment descriptions, types, models, serial numbers, and operating characteristics where available.

Hazardous waste streams handled at the CHK facility have been assumed to exceed the ten (10) percent organic content limit and a majority are liquids. The gas/vapor service equipment is identified by type of associated process. This service is limited to equipment on condensers and vent lines, and is identified in the tables included in Appendix N-D. All pipelines subject to these standards are identified as being in either vapor or liquid service in the pipe line lists in Appendix N-D. Light liquid services are identified by the identification number for the pipeline in which the equipment is installed. K-XXX represents a kiln fuel service, N-XXX represents a non-chlorinated organics service, C-XXX represents a chlorinated organics service, W-XXX represents an aqueous organics service, and O-XXX represents waste oil service.

Each piece of equipment subject to 40 CFR Subpart BB standards is marked in such a manner that it can be distinguished readily from other pieces of equipment. Markings include identification tags and/or color coding as appropriate.

N-6b Method Of Compliance

Pumps are monitored monthly in accordance with 264.1052 (a), (b), and (c); except for those pumps listed in Appendix N-E. Those pumps are tested for compliance with no detectable emissions standards annually.

Valves are tested annually for leaks in accordance with 264.1061, (standards allowing no greater than two (2) percent of the valves to leak); except for those valves which are designated as difficult to monitor. These valves are monitored for leaks annually.

Flanges and other connectors are inspected weekly and monitored if evidence of a leak is found.

All open-ended valves and lines at the CHK facility are equipped with caps or plugs intended to seal the open end when the line or valve is not in service. All double block lines at the facility are operated such that the valve on the hazardous waste stream side is closed before the second valve is closed.

N-6c Control Devices

No control devices are required on the units at the CHK facility, so no implementation schedule for their installation, their design, or performance test plans have been prepared.

N-6d Leak Identification

Whenever a leak is detected on any equipment, a weatherproof tag shall be attached showing the equipment identification number, the date a potential leak was visually identified, the date a leak was detected in accordance with 264.1058 (a). This equipment identification tag will be removed after repair except for valves.

The equipment identification tag will remain on repaired valves until two (2) successive months of monitoring indicate that the leak has been repaired by measurements less than 10,000 ppm.

When a leak has been detected by exceeding a 10,000 ppm measurement, information on the leak and its repair will be documented and made part of the operating record. An example of the leak reports and repair records are included in Appendix N-F. This information shall include the following.

- The instrument and operator and the leaking equipment identification number.

- The date a potential leak was identified.

- The date a leak was detected by exceeding 10,000 ppm on the instrument and the date of each attempted repair.

- The repair method applied with each attempt to repair the leak.

- The monitoring results following each repair attempt and the indication of "greater than 10,000 ppm" if the reading is above 10,000 ppm.

- The notation "Repair Delayed" if repairs are delayed past fifteen (15) days.

- Documentation of the repair delay in accordance with 264.1059 (c).

- The signature of the owner or operator whose decision it is to delay the repair due to the need for a hazardous waste management unit shutdown.

- The expected date of successful repair of the leak if it is not repaired within fifteen (15) days.

- The date of successful repair.

N-6e Equipment List

The list of equipment subject to the requirements of 264.1052 through 264.1060 appears in the tables in Appendix N-D.

N-6f No Detectable Emission Equipment

A list of equipment designated by CHK as meeting the no detectable emissions standards for pumps from 264.1052 (e) appears in Appendix N-E along with a statement signed by Clean Harbors designee at the CHK facility.

The dates of the compliance tests, the background value, and the highest value measured for each pump designated according to 264.1052 (e) and identified according to paragraph (g) (2) (i) of this section appears in Appendix N-F along with all field records of the monthly monitoring performed on all regulated equipment at the CHK facility.

N-6g Pressure Relief and Vacuum Equipment

There are no pressure relief devices at the CHK facility subject to this requirement.

N-6h Difficult to Monitor Valves

Valves that have been identified as difficult to monitor are identified in the tables in Appendix N-D by the identification number P-XXXU/PXXXU or M-XXXU/MXXXU. CHK does not elect to identify any equipment as unsafe-to-monitor at this time. The difficult-to-monitor valves identified pursuant to 264.1057 (h) listed in the tables in Appendix N-D are all located at or above two (2) meters above a supported surface. The valves will be monitored annually when a portable structure capable of safely supporting monitoring personnel can be scheduled.

N-6i Process Information for Exemptions

Information is available in the facility records which indicates the design capacity of the hazardous waste management units.

The facility operating record includes information on the influent and effluent of each hazardous waste management unit subject to these requirements.

No hazardous waste management unit exclusively handles heavy liquids and all equipment is covered by sections of the requirements which apply to light liquids. All identified hazardous waste equipment in waste service contacts waste with ten (10) percent or greater organics. CHK has made this determination based on knowledge of the waste streams. No exemptions are currently being claimed on the basis of weight percent organics in the waste stream or type of liquid service (heavy or light). This information constitutes the supporting information on the applicability of these requirements at the CHK facility and will be updated on a regular basis.

N-6j <u>Operating Information</u>

The records required by 264.1064 (d) and (e) will be maintained on site for a period of three years.

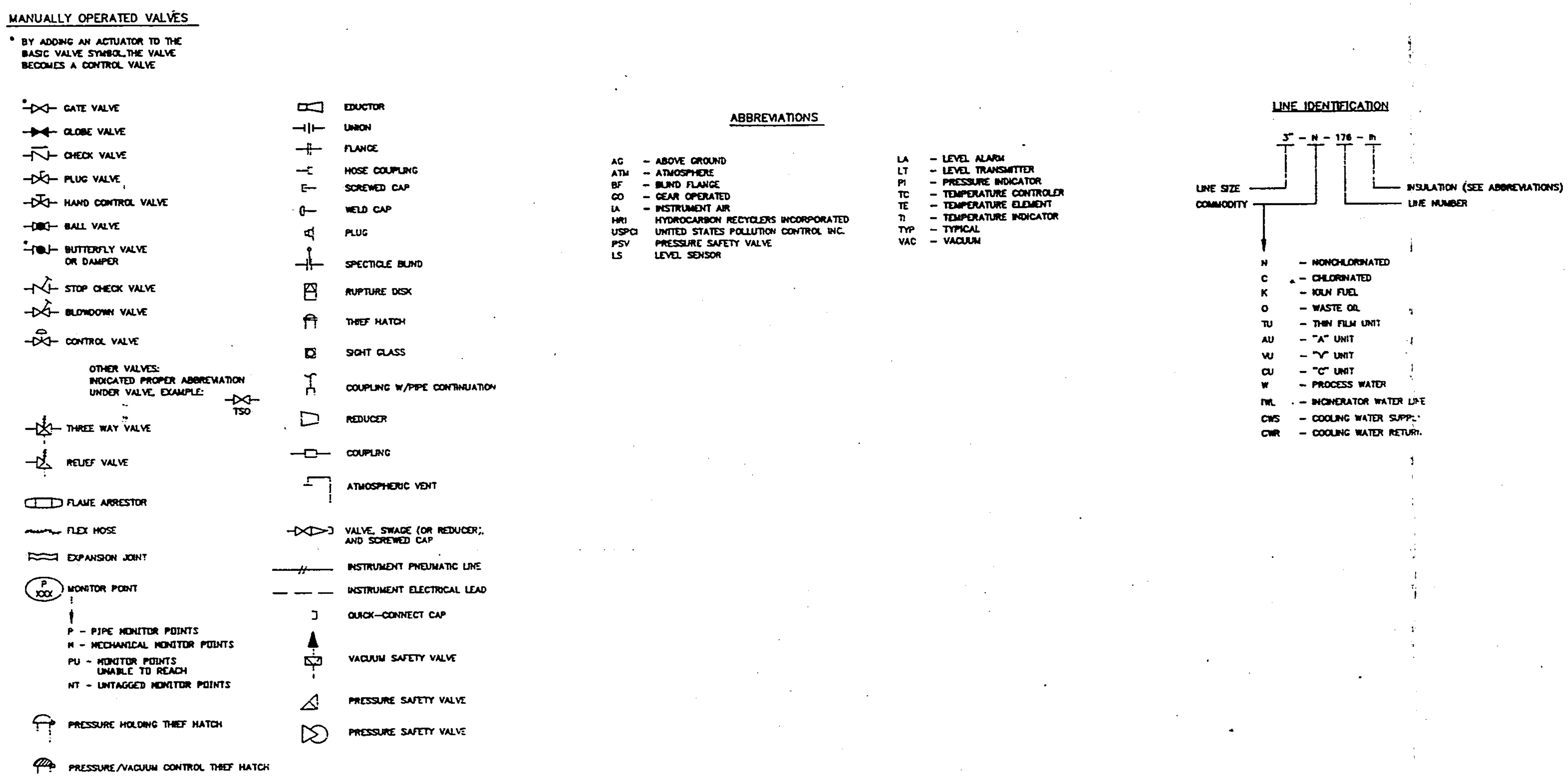
N-6k <u>Additional Fugitive Emission Requirements</u>

CHK is not subject to the additional requirements from 40 CFR

Part 60, subpart VV; or Part 61, subpart V; and therefore cannot document compliance with this section using duplicative information.

Appendix N-A - Facility and Process Drawings

Drawing Number	Sheet	Subject
665300-4-W401	1 of 9	Legend & Symbology
665300-4-W404B	3 of 9	Sparging Room I - Round Spargers System
665300-4-W404C	4 of 9	Sparging Room II - Rectang. Spargers System
665300-4-W404D	5 of 9	Storage Tank Room I/V-9 Thru V-14
665300-4-W404E	6 of 9	Storage Tank Room II/V-15 A-D & V-16
665300-4-W404F	7 of 9	Process Areas /V-17, P11 & P-5 Pump Details
665300-4-W404G	8 of 9	Tank Farm I/V-1, V-2, V-3 & V-4
665300-4-W404H	9 of 9	Tank Farm II/V-5 Thru V-8/N & S Manifolds
665300-4-W050	1 of 1	Piping Plot Plan
665300-4-W510-1	1 of 2	Piping Transposition - Process Area
665300-4-W510-2	2 of 2	Piping Transposition - Process Area
665300-4-W511-1	1 of 2	Piping Transposition - Tank Farm
665300-4-W511-2	2 of 2	Piping Transposition - Tank Farm
665300-4-W512	1 of 1	Piping Transpositon - Storage Tank Room
665300-4-W513	1 of 1	Piping Transpositon - Sparger Room
665300-4-W514	1 of 1	Piping Transpositon - Solids Process Area



NO.	DATE	REVISION DESCRIPTION
		REVISED PER CLIENT COMMENTS
1	7/92	REVISED PER CLIENT COMMENTS

U.S.P.C.I PURCHASE ORDER NO. 90088

USPCI
A Subsidiary of Union Pacific Corporation

FLUOR DANIEL

DRAWN BY: R. GARZA
CHECKED BY: RDH
SUPERVISOR: MT.
SUPERVISING ENGR.: RC
PROJECT ENGR.: CW
SCALE: NONE

P & ID
LEGEND & SYMBOLOGY
WICHITA, KANSAS

DRAWING NUMBER: 665300-4-W401
SHEET: 1 of 9
REVISION: 2

DISTRIBUTION CODE

3/21/91 FILE NAME:

NOTE:

ALL SYSTEMS TAKEN OUT OF SERVICE.

NO.	DATE	REVISION DESCRIPTION	DWG. NO.	REFERENCE DRAWING
1		REVISED PER CLIENT COMMENTS		
2	7/92	REVISED PER CLIENT COMMENTS	4-W313	SPARGER ROOM TRANSPOSITION

USPCI
A Subsidiary of Union Pacific Corporation

FLUOR DANIEL

C.L. AMES

W. SCOTT

PIPING & INSTRUMENT DIAGRAM
SPARGING-ROOM 1 – ROUND SPARGERS SYSTEM
WICHITA, KANSAS

NONE

665300-4-W404B

3 - 9 2

NOTE:

SPARGING SYSTEMS REMOVED.

NO.	DATE	REVISION DESCRIPTION
1		REVISED PER CLIENT'S COMMENTS
2	7/92	REVISED PER CLIENT'S COMMENTS

REFERENCE DRAWINGS	
14-W513	SPARGER ROOM TRANSPOSITION

USPCI

A Subsidiary of Union Pacific Corporation

FLUOR DANIEL

DRAWN BY C.L. AMES

CHECKED BY R. SCOTT

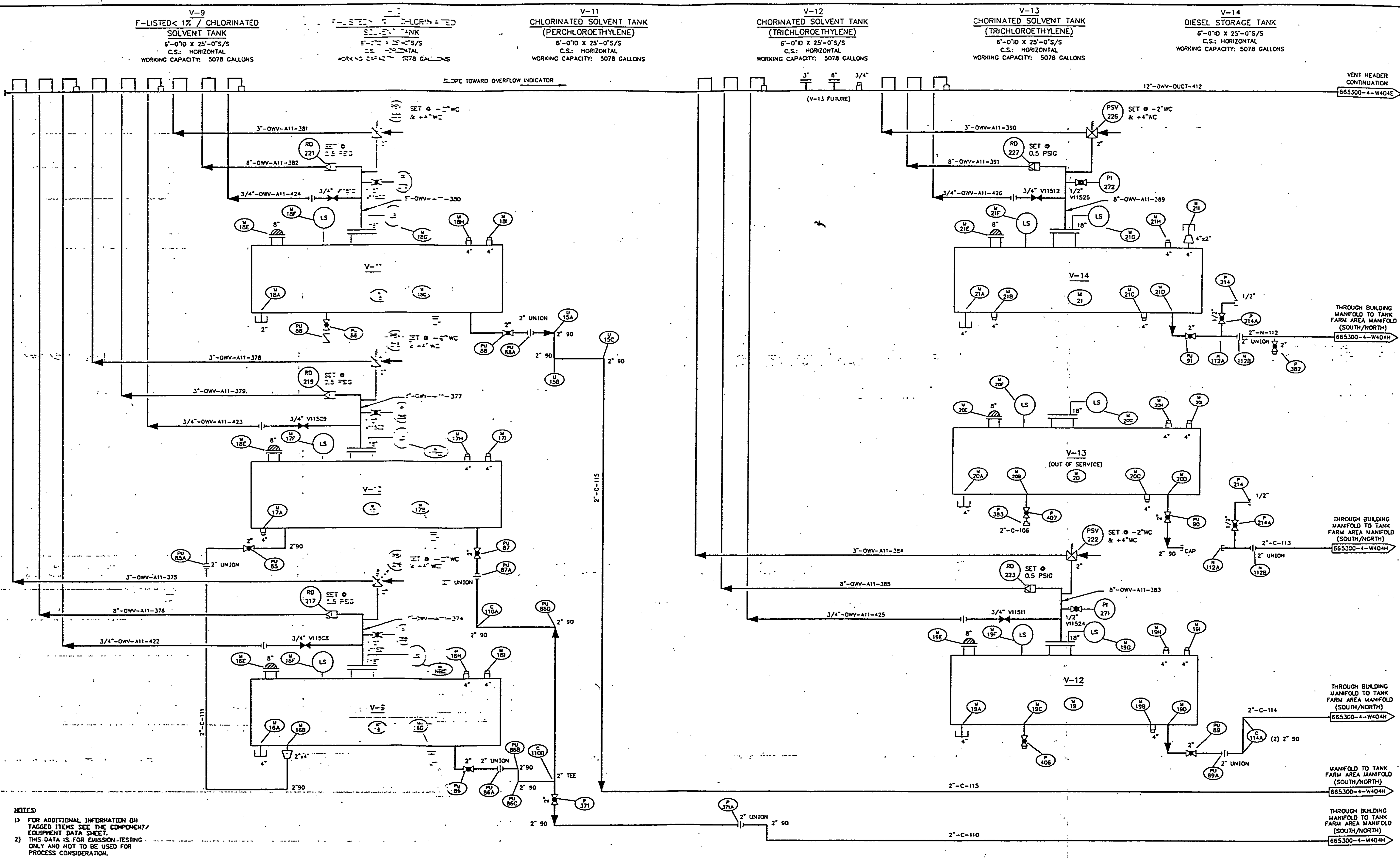
PIPING & INSTRUMENT DIAGRAM
SPARGING ROOM II–RECTANGULAR SPARGERS SYSTEM
WICHITA, KANSAS

SCALE: NONE

DRAWING NUMBER: 665300-4-W404C

SHEET: 4 - 9

REVISION: 12



NOTES:

1) FOR ADDITIONAL INFORMATION ON TAGGED ITEMS SEE THE COMPONENT/EQUIPMENT DATA SHEET.
2) THIS DATA IS FOR EMISSION TESTING ONLY AND NOT TO BE USED FOR PROCESS CONSIDERATION.
3.) UTILITY HEADERS: STEAM, AIR, AND WATER ARE ALSO PASSING THROUGH THE STORAGE TANK BUILDING FROM THE UTILITY ROOM ON THE EAST SIDE TO THE TANK FARM AREA TO THE WEST SIDE OF THE STORAGE TANK BUILDING.

REFERENCE DRAWINGS	
STORAGE TANK RM. TRANSPOSITION	4-W512

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
4	GENERAL REVISION	WDS	7/98	
3	REVISED PER CLIENT'S COMMENTS		7/92	
2	REVISED PER CLIENT'S COMMENTS		5/92	
1	REVISED PER CLIENT COMMENTS			

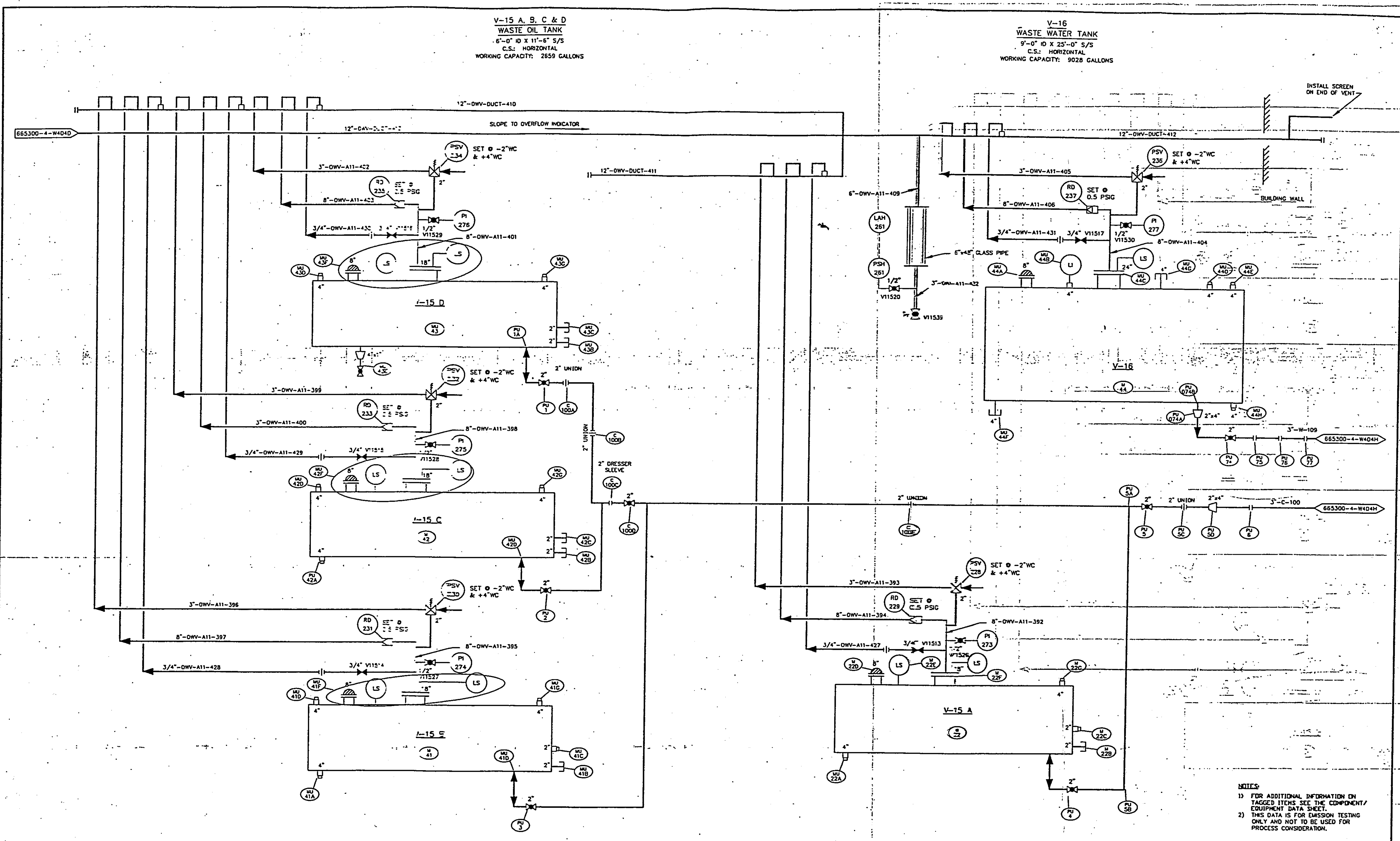
safety-kleen.

DRAWN	CHECKED	SCALE	DATE
AMES	DC	NTS	

TITLE: PIPING & INSTRUMENT DIAGRAM
STORAGE TANK ROOM I/V-9 THRU V-14
WICHITA, KANSAS

W404D

DRAWING NO. 665300-4-W404D REV. 4



NOTES:

1) FOR ADDITIONAL INFORMATION ON TAGGED ITEMS SEE THE COMPONENT/ EQUIPMENT DATA SHEET.
2) THIS DATA IS FOR EMISSION TESTING ONLY AND NOT TO BE USED FOR PROCESS CONSIDERATION.

REFERENCE DRAWINGS	
STORAGE TANK RM. TRANAPOSITION	4-W512

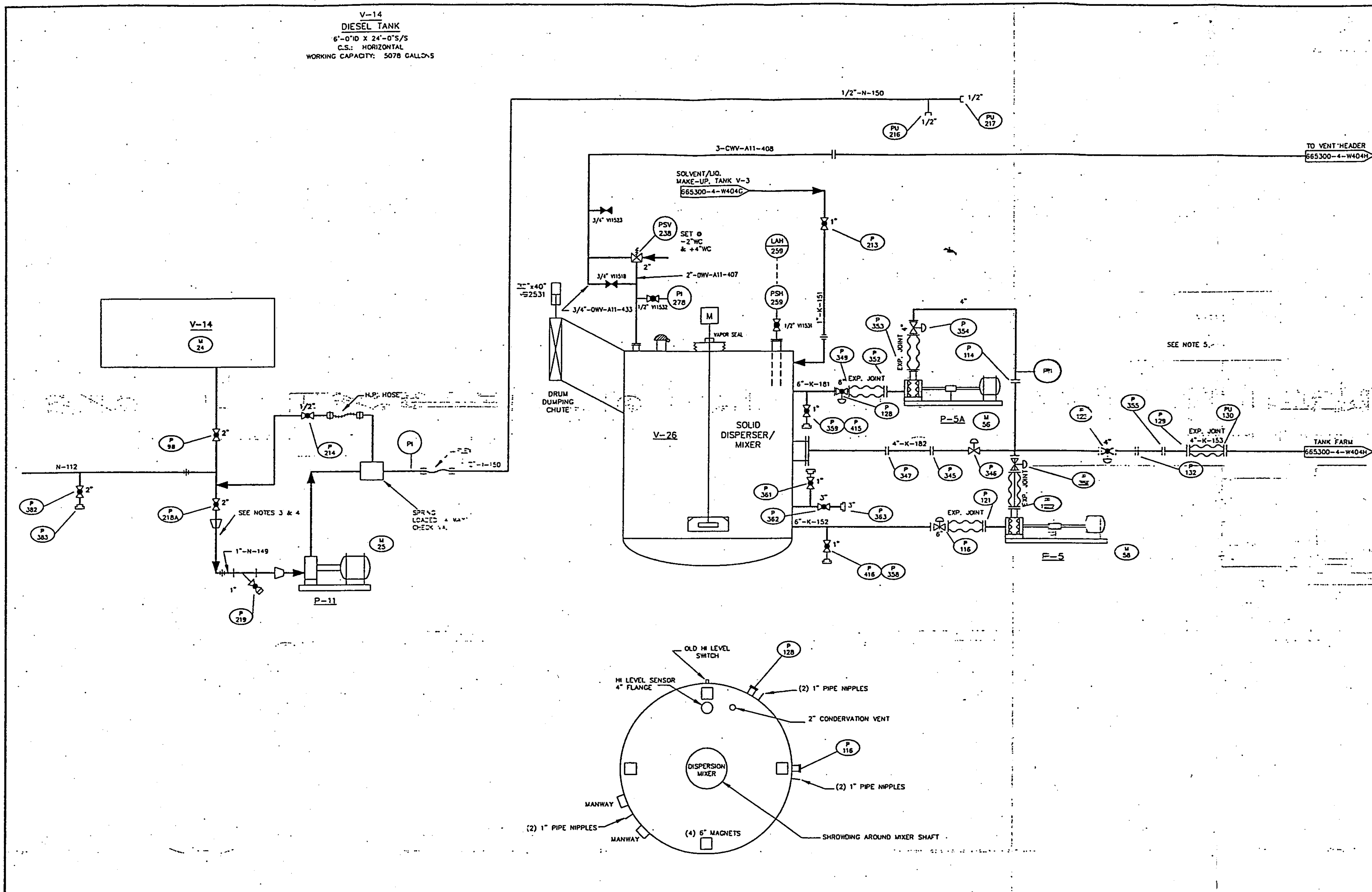
REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
3	GENERAL REVISION	WDS	7/15/98	
2	REVISED PER CLIENT COMMENTS		5/92	
1	REVISED PER CLIENT'S COMMENTS	AMES		

safety-kleen.

TITLE W404E

PIPING & INSTRUMENT DIAGRAM
STORGE TANK ROOM II/V-15 A-D & V-16
WICHITA, KANSAS

DRAWN	CHECKED	SCALE	DATE	DRAWING NO.	REV.
AMES	DC	NTS	7/15/98	665300-4-W404E	3

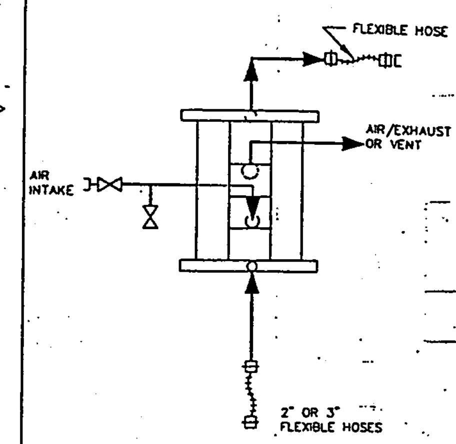


P-11
DIESEL INJECTION PUMP
ΔP = 30 PSI
MOTOR: 10 HP, 1750 RPM

P-5, P-5A
VAUGHAN/GRINDER PUMP
ΔP = 30 PSI
MOTOR: 20 HP, 1760 RPM
BELT DRIVEN WITH GEAR BOX

DIAPHRAGM PUMP DETAILS

TYPICAL AIR OPERATED DIAPHRAGM PUMP(S) AND FLEXIBLE HOSES WITH QUICK CONNECTIONS ON BOTH ENDS ARE EXTENSIVELY USED IN PLANT OPERATIONS.



TAG NUMBERS:	PUMP NUMBERS:
M 28	P-6
M 29	P-7
M 30	P-8
M 39	P-9
M 40	P-10
M 68	P-29
M 69	P-30
M 70	P-31
M 71	P-32

P-6,7,8,9,10,29,30,31,32
AIR OPERATED DIAPHRAGM PUMP(S) (PORTABLE)

- FIVE (5) PORTABLE PUMPS
- USE QUICK COUPLING CONNECTIONS FOR BOTH AIR AND PROCESS FLUIDS.
- PUMPS USED FOR LOADING, UNLOADING, TRANSFER BETWEEN TRUCKS, TANKS, DRUMS, AND MANIFOLDS.
- ALWAYS USE FLEXIBLE HOSES TO AND FROM THE PUMP
- RATE OF PUMPING IS CONTROLLED BY INTAKE AIR VOLUME AND PRESSURE.

NOTES:

1) FOR ADDITIONAL INFORMATION ON TAGGED ITEMS SEE THE COMPONENT/ EQUIPMENT DATA SHEET.
2) THIS DATA IS FOR EMISSION TESTING ONLY AND NOT TO BE USED FOR PROCESS CONSIDERATION.
3) HIGH PRESSURE DIESEL SUPPLY TO THE PROCESS AREA DRUM WASHING HP SPRAY NOZZLE ONLY.
4) DRUM RESTS ON SADDLE, MOTOR AND PUMP ARE SKID MOUNTED. HP PUMP IS BELT DRIVEN.
5) DUE TO HIGH SOLID CONTENT OF THE MIXED STREAM (FROM 20% TO 50%), SOLID SETTLING IS ALWAYS A PROBLEM. FOR UNPLUGGING PURPOSE, ALL THE PIPING, FILTER, AND THE PUMP ITSELF ARE DESIGNED FOR QUICK OPENING AND REASSEMBLY.

REFERENCE DRAWINGS	
PLOT PLAN	4-W404
PROCESS AREA TRANSPOSITION	4-W510-1
TANK FARM TRANSPOSITION	4-W511-1

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
6	GENERAL REVISION	WOS	7/98	
5	REVISED PER COMMENTS FROM DAVID SHIMP		3/93	
4	REVISED PER COMMENTS FROM DAVID SHIMP		7/92	
3	REVISED PER COMMENTS FROM DENNIS NIVENS		5/92	
2	REVISED PER PROCESS AREA RENOVATION		2/92	
1	REVISED PER CLIENT'S COMMENTS			

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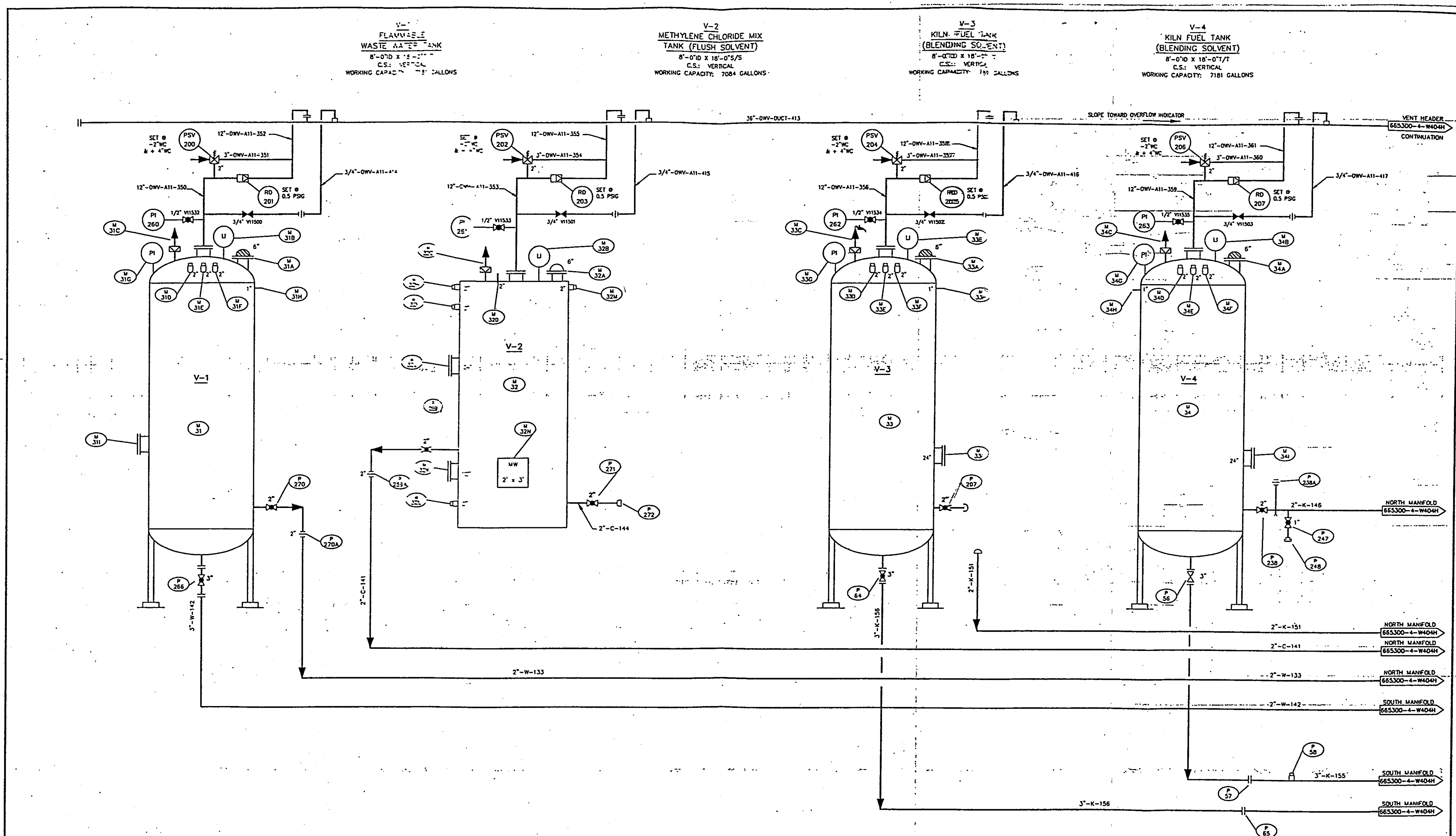
DRAWN	CHECKED	SCALE	DATE
AMES	SCOTT	NTS	

TITLE W404F
PIPING & INSTRUMENT DIAGRAM
PROCESS AREAS /V-17, P11 & P-5
PUMP DETAILS
WICHITA, KANSAS

DRAWING NO. 665300-4-W404F REV. 6



NOTES:

1) FOR ADDITIONAL INFORMATION ON TAGGED ITEMS SEE THE COMPONENT/ EQUIPMENT DATA SHEET.

2) THIS DATA IS FOR EMISSION TESTING ONLY AND NOT TO BE USED FOR PROCESS CONSIDERATION.

TANK FARM TRANSPOSITION	4-W511-2
TANK FARM TRANSPOSITION	4-W511-1
REFERENCE DRAWINGS	

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
4	GENERAL REVISIONS	WCS	7/98	
3	REVISED PER COMMENTS FROM D. SHIMP		7/92	
2	REVISED PER COMMENTS FROM D. SHIMP		5/92	
1	REVISED PER CLIENT COMMENTS			

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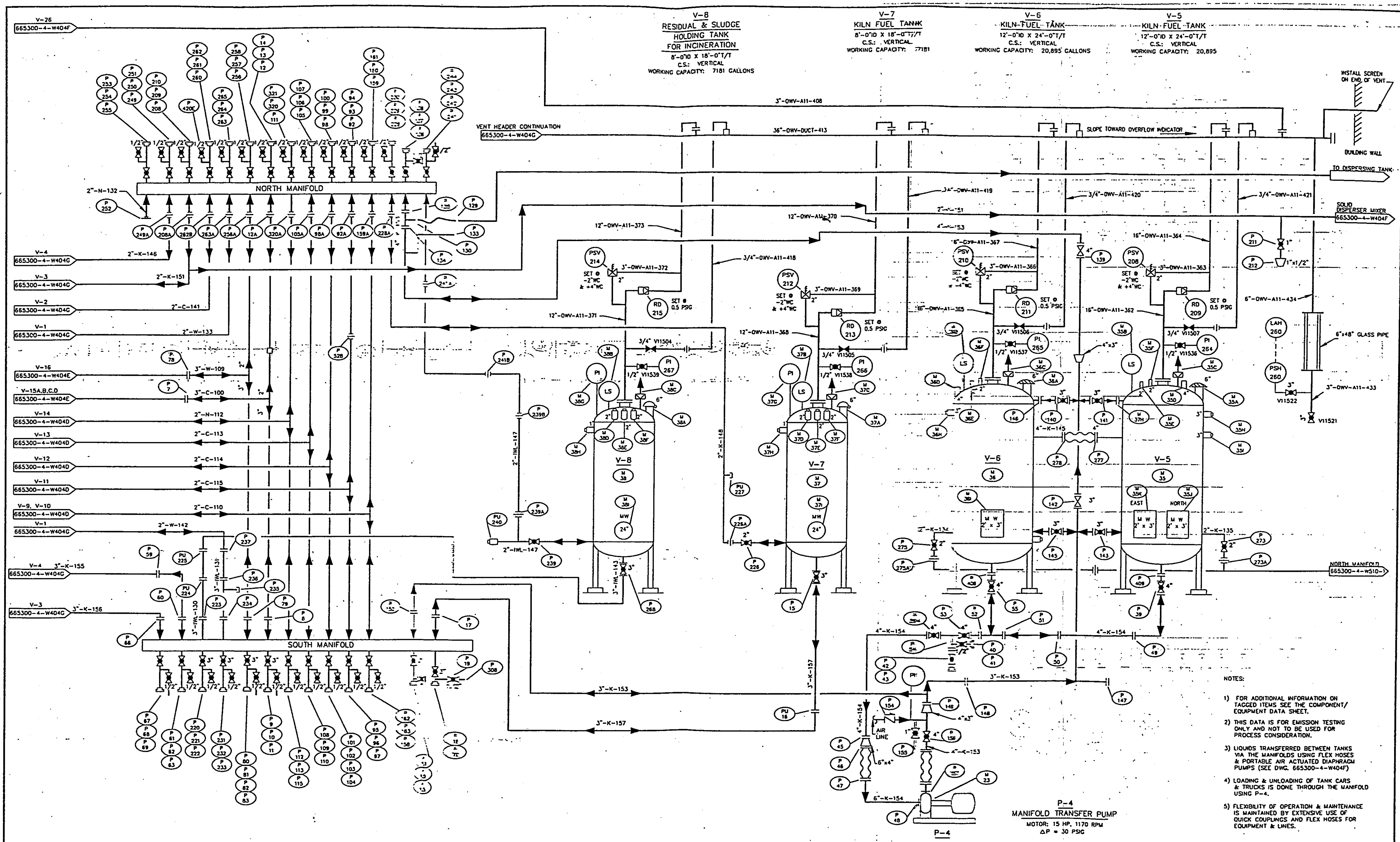
DRAWN	CHECKED	SCALE	DATE
AMES		NTS	

TITLE W404G

PIPING & INSTRUMENT DIAGRAM
TANK FARM I/V-1, V-2, V-3 & V-4
WICHITA, KANSAS

DRAWING NO. 665300-4-W404G REV. 4



NOTES:

1) FOR ADDITIONAL INFORMATION ON TAGGED ITEMS SEE THE COMPONENT/ EQUIPMENT DATA SHEET.

2) THIS DATA IS FOR EMISSION TESTING ONLY AND NOT TO BE USED FOR PROCESS CONSIDERATION.

3) LIQUIDS TRANSFERRED BETWEEN TANKS VIA THE MANIFOLDS USING FLEX HOSES & PORTABLE AIR ACTUATED DIAPHRAGM PUMPS (SEE DWG. 665300-4-W404F)

4) LOADING & UNLOADING OF TANK CARS & TRUCKS IS DONE THROUGH THE MANIFOLD USING P-4.

5) FLEXIBILITY OF OPERATION & MAINTENANCE IS MAINTAINED BY EXTENSIVE USE OF QUICK COUPLINGS AND FLEX HOSES FOR EQUIPMENT & LINES.

REFERENCE DRAWINGS	
TANK FARM TRANSPOSTION	4-W511-2
TANK FARM TRANSPOSITION	4-W511-1

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
4	GENERAL REVISIONS	WDS	7/98	
3	REVISED PER CLIENT COMMENTS FROM DAVID SHIMP		7/92	
2	REVOSED PER CLIENT COMMENTS PER DAVIC SHIMP		5/92	
1	REVISED PER CLIENT COMMENTS			

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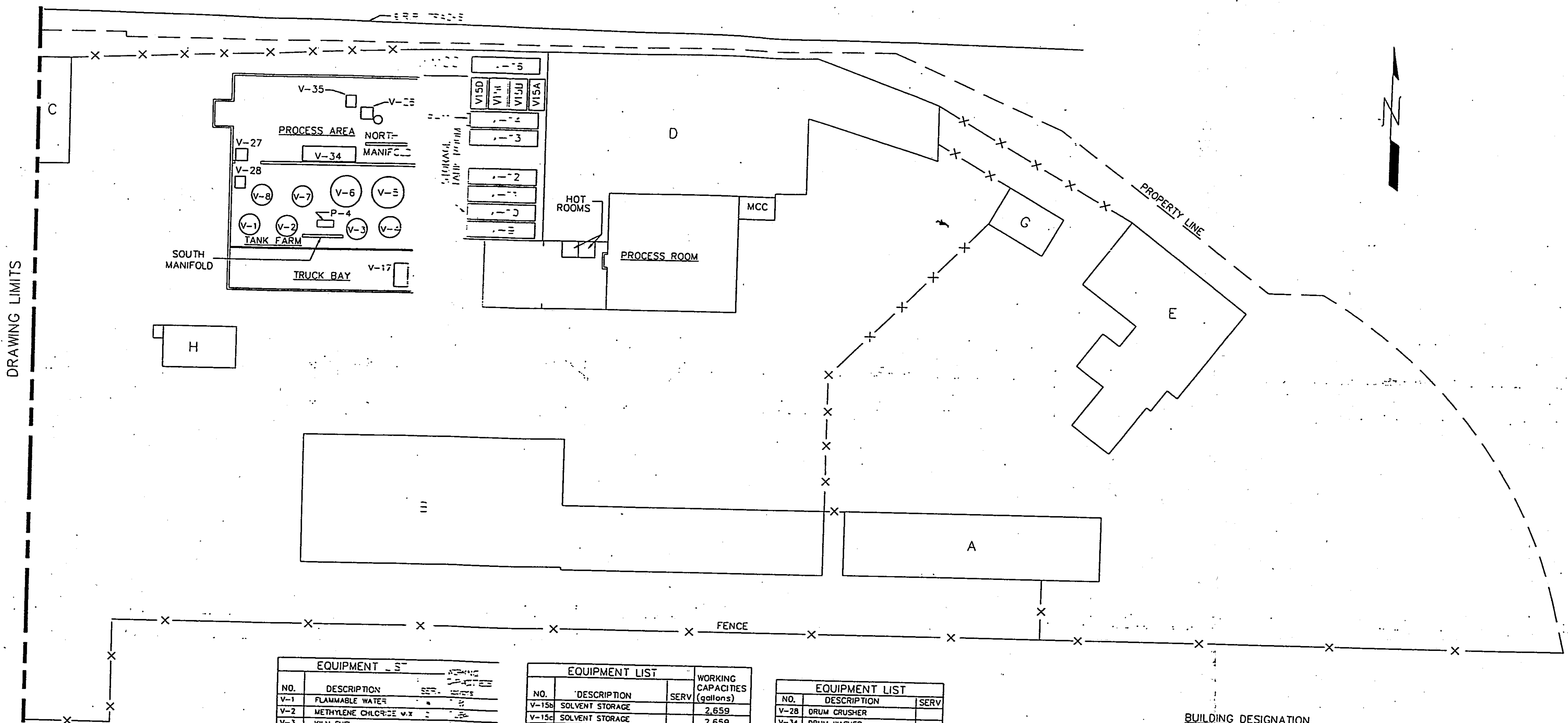
DRAWN	CHECKED	SCALE	DATE
AMES	SCOTT	NTS	

TITLE: PIPING & INSTRUMENT DIAGRAM
TANK FARM II
V-5 THRU V-8/NORTH & SOUTH MANIFOLDS
WICHITA, KANSAS

DRAWING NO. 665300-4-W404H REV. 4



EQUIPMENT LIST			
NO.	DESCRIPTION	SERV	WORKING CAPACITIES
V-1	FLAMMABLE WATER	[illegible]	[illegible]
V-2	METHYLENE CHLORIDE MIX	[illegible]	[illegible]
V-3	KILN FUEL	[illegible]	[illegible]
V-4	KILN FUEL	[illegible]	[illegible]
V-5	KILN FUEL	[illegible]	[illegible]
V-6	KILN FUEL	[illegible]	[illegible]
V-7	KILN FUEL	[illegible]	[illegible]
V-8	INCINERATION	[illegible]	[illegible]
V-9	F-LISTED <1%	[illegible]	[illegible]
V-10	F-LISTED >1%	[illegible]	[illegible]
V-11	PERCHLOROETHYLENE	[illegible]	[illegible]
V-12	TRICHLOROETHYLENE	[illegible]	[illegible]
V-13	TRICHLOROETHYLENE	[illegible]	[illegible]
V-14	DIESEL	[illegible]	[illegible]
V-15a	SOLVENT STORAGE		[illegible]

EQUIPMENT LIST			WORKING CAPACITIES (gallons)
NO.	DESCRIPTION	SERV	
V-15b	SOLVENT STORAGE		2,659
V-15c	SOLVENT STORAGE		2,659
V-15d	SOLVENT STORAGE		2,659
V-16	NON-HAZ. WATER/COOLANT	N	9,028
V-17	SMALL GASOLINE TANK	N	522
V-18	CONDENSATE SEPARATOR TANK		489
V-19	STEAM DRYER		
V-20	SHREDDER		
V-21	GRANULATOR		
V-22	BAG HOUSE		
V-23	CYCLONE		
V-24	ACCUMULATION TANK	C	100
V-25	SCREW CONVEYOR		
V-26	DISPERSING TANK	K	1,129
V-27	DRUM CRUSHER		

EQUIPMENT LIST		
NO.	DESCRIPTION	SERV
V-28	DRUM CRUSHER	
V-34	DRUM WASHER	
V-35	DRUM SCRAPER	
F-1	GRINDING PUMP FILTER	
E-1	EXCHANGER	
P-11	DIESEL INJECTION PUMP	
P-12	EXHAUST FAN	

BUILDING DESIGNATION

A — LABORATORY
B — WAREHOUSE
C — WAREHOUSE
D — WAREHOUSE
E — ADMINISTRATION ENGINEERING SALES
G — LUNCH ROOM
H — OPERATIONS
MCC — MOTOR CONTROL CENTER

0 10 20 30 40 50 60 70 80 90 100
SCALE IN FEET

REFERENCE DRAWINGS

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
5	REVISED PER WICHITA	WDS	7/98	
4	REVISED PER WICHITA RENOVATION		7/92	
3	REVISED PER WICHITA RENOVATION		5/92	
2	REVISED PER WICHITA RENOVATION		12/91	
1	REVISED PER CLIENT'S COMMENTS			

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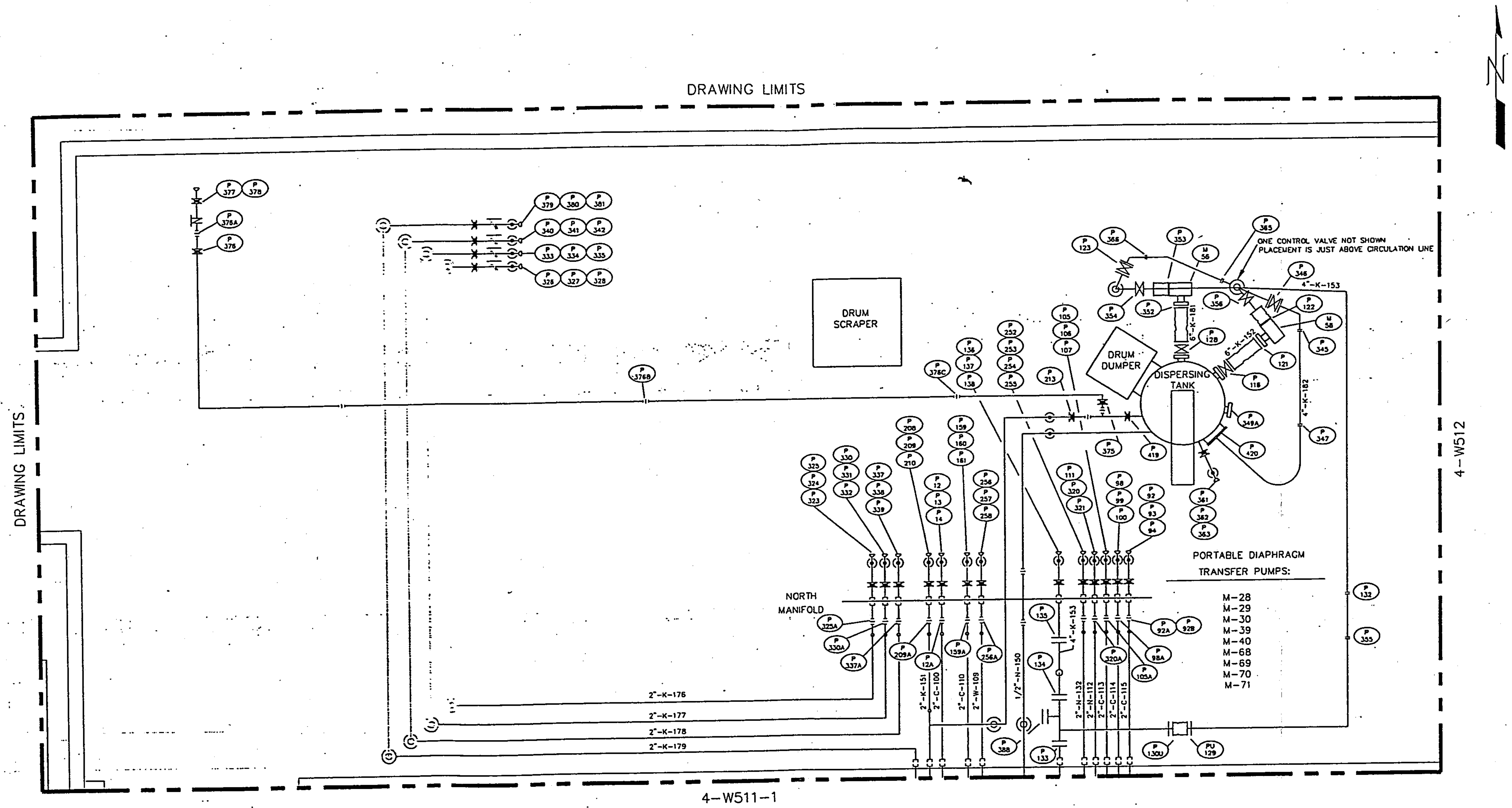
DRAWN	CHECKED	SCALE	DATE
JOE M	D.C.		

TITLE
PIPING
PLOT PLAN
WICHITA, KANSAS

DRAWING NO.
REV.



SCALE \ FEET

3/8"

NOTES:

1) FOR ADDITIONAL INFORMATION ON TAGGED ITEMS SEE THE COMPONENT/ EQUIPMENT DATA SHEET.
2) THIS DATA IS FOR EMISSION TESTING ONLY AND NOT TO BE USED FOR PROCESS CONSIDERATION.

REFERENCE DRAWINGS	
TRANS. PROCESS AREA	4-W510-2
PLOT PLAN	4-W050
TANK FARM ROOM II / P & I D	4-W404H
PROCESS AREA / P & I D	4-W404F

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
6	GENERAL REVISION	WDS	7/98	
5	REVISED PER CLIENT COMMENT FROM DAVID SHIMP		3/93	
4	REVISED PER CLIENT COMMENT FROM DAVID SHIMP		7/92	
3	REVISED PER CLIENT COMMENT FROM DAVID SHIMP		5/92	
2	REVISED PER PROCESS AREA RENOVATIONS			
1	REVISED PER CLIENT			

safety-kleen.

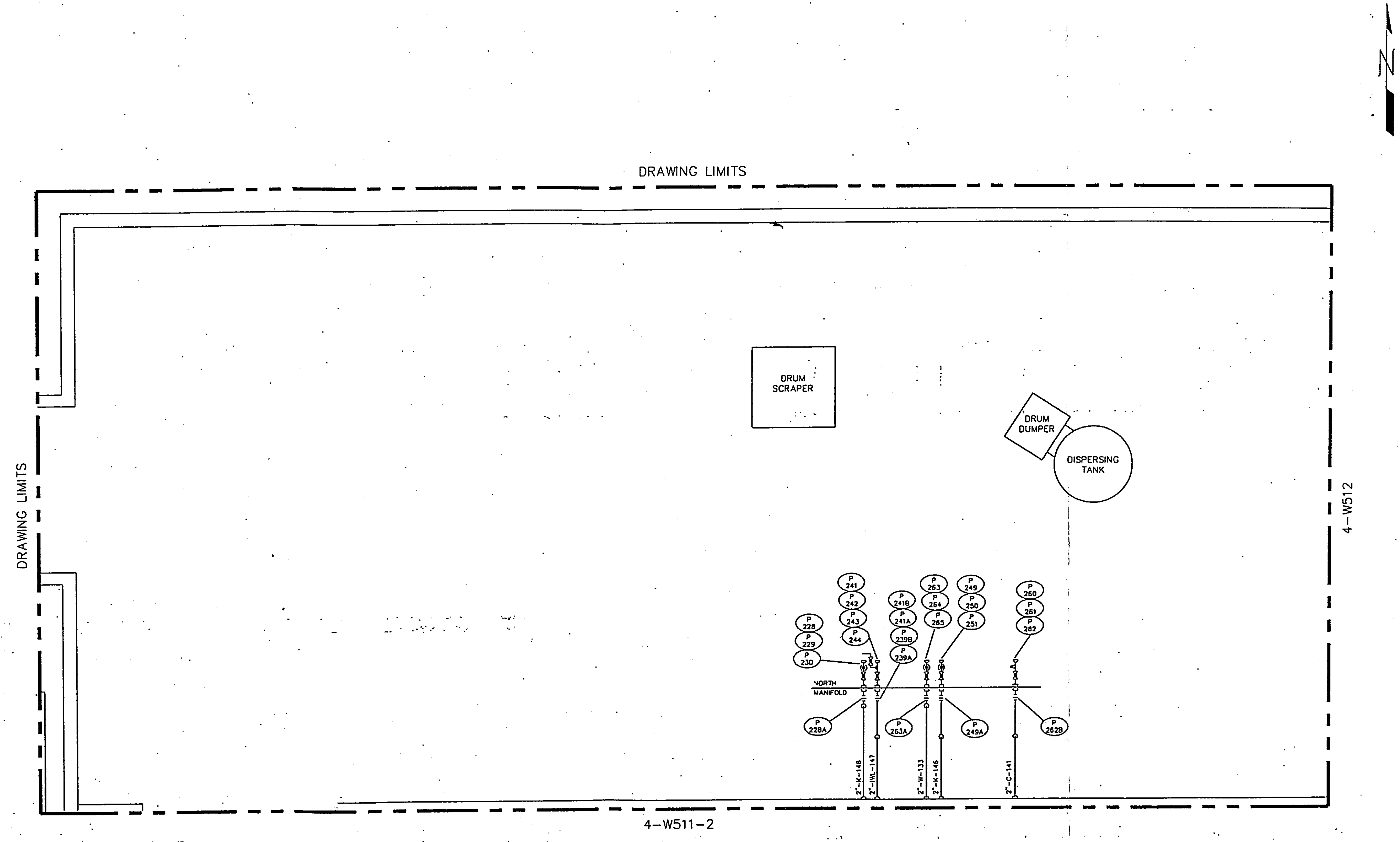
DRAWN	CHECKED	SCALE	DATE
AMES			

TITLE W510

PIPING TRANSPOSITION
PROCESS AREA
WICHITA, KANSAS

DRAWING NO. 665300-4-W510-1

REV. 6



NOTES:

1) FOR ADDITIONAL INFORMATION ON TAGGED ITEMS SEE THE COMPONENT/ EQUIPMENT DATA SHEET.

2) THIS DATA IS FOR EMISSION TESTING ONLY AND NOT TO BE USED FOR PROCESS CONSIDERATION.

SCALE IN FEET

3/8" 1 2 3 4 5 6 7 8

REFERENCE DRAWINGS

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
5	GENERAL REVISION	WDS	7/98	
4	REVISED PER PROCESS AREA RENOVATION		7/92	
3	REVISED PER PROCESS AREA RENOVATION		5/92	
2	REVISED PER PROCESS AREA RENOVATION			
1	REVISED PER CLIENTS COMMENTS			

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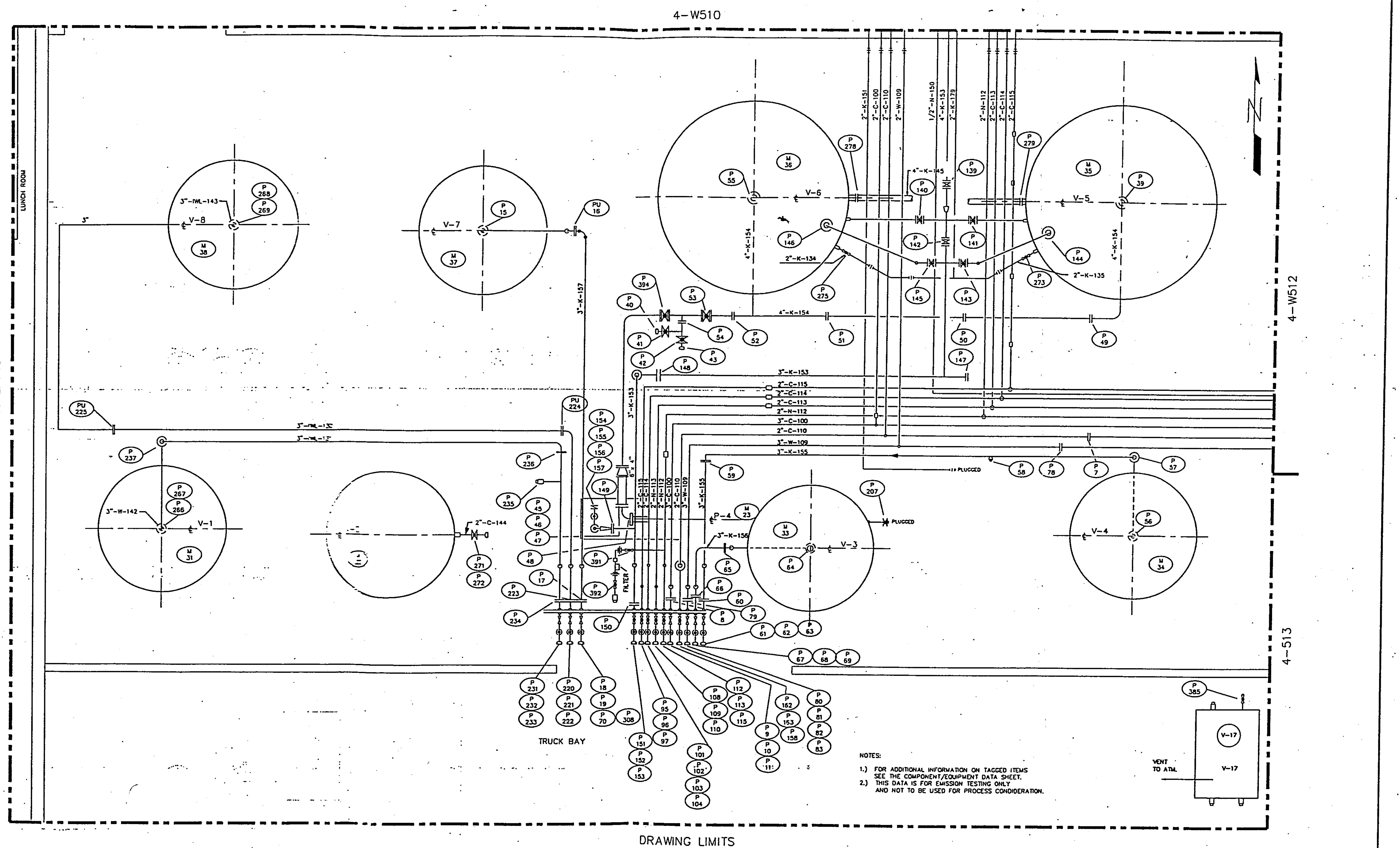
DRAWN	CHECKED	SCALE	DATE

TITLE W510-2

PIPING TRANSPOSITION
PROCESS AREA
WICHITA, KANSAS

DRAWING NO. 665300-4-W510-2

REV. 5



NOTES:

1.) FOR ADDITIONAL INFORMATION ON TAGGED ITEMS SEE THE COMPONENT/EQUIPMENT DATA SHEET.
2.) THIS DATA IS FOR EMISSION TESTING ONLY AND NOT TO BE USED FOR PROCESS CONDIDERATION.

SCALE IN FEET 3/8"

REFERENCE DRAWINGS	
TANK FARM II TRANSPOSITION	4-W404H
TANK FARM I TRANSPOSITION	4-W404G
TANK FARM TRANSPOSITION	4-W511-2
PLOT PLAN	4-W050

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
6	GENERAL REVISIONS	WDS	7/98	
5	REVISED PER WICHITA RENOVATIONS		3/93	
4	REVISED PER WICHITA RENOVATIONS		7/92	
3	REVISED PER WICHITA RENOVATIONS		5/92	
2	REVISED PER WICHITA RENOVATIONS		12/91	
1	REVISED PER CLIENT COMMENTS			

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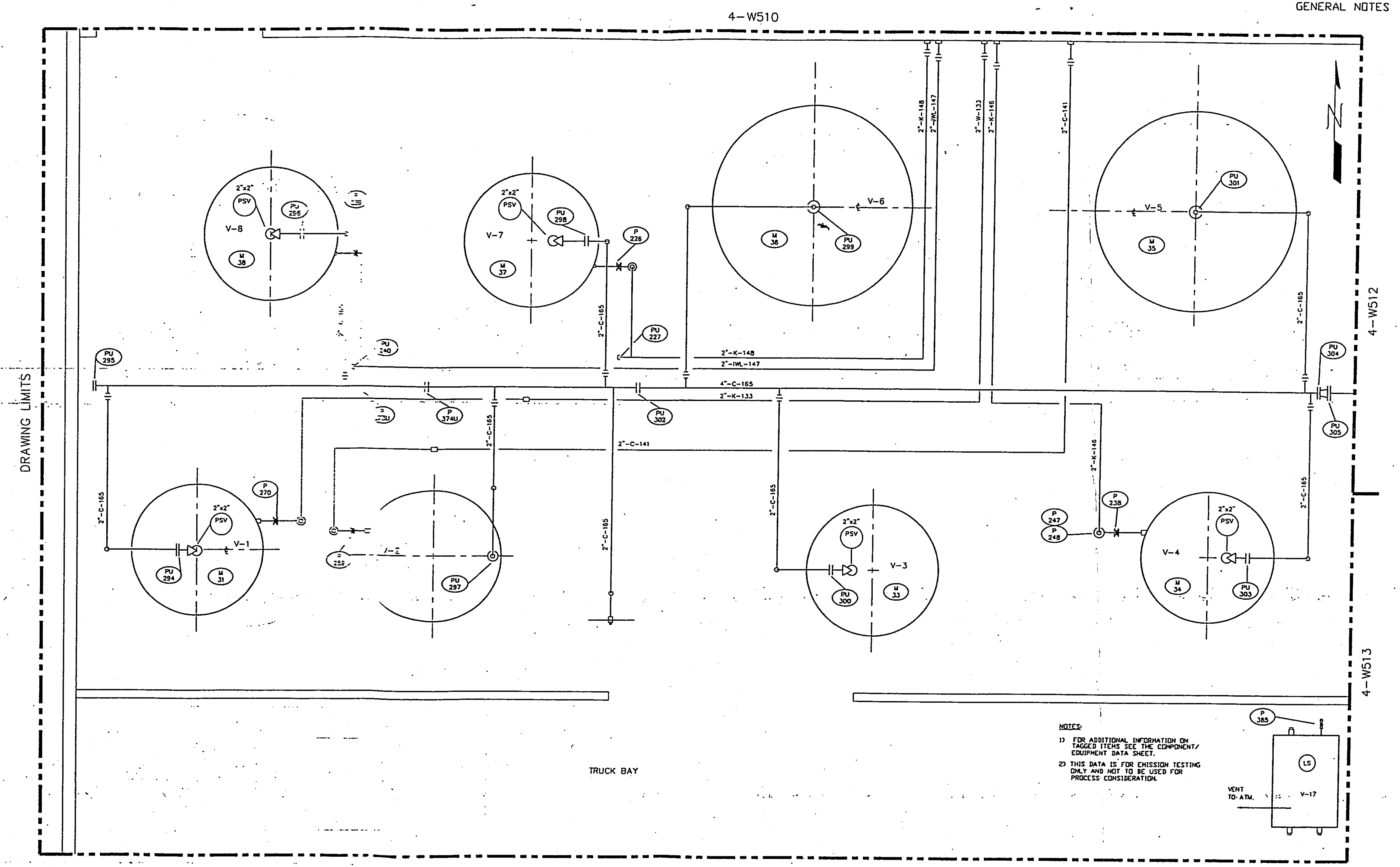
DRAWN	CHECKED	SCALE	DATE
AMES			

TITLE W511-1

PIPING TRANSPOSITION
TANK FARM
WICHITA, KANSAS

DRAWING NO. 665300-4-W511-1 REV. 6



NOTES:

1) FOR ADDITIONAL INFORMATION ON TAGGED ITEMS SEE THE COMPONENT/ EQUIPMENT DATA SHEET.

2) THIS DATA IS FOR EMISSION TESTING ONLY AND NOT TO BE USED FOR PROCESS CONSIDERATION.

SCALE IN FEET

3/8"

REFERENCE DRAWINGS

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
4	REVISED PER CLIENT COMMENTS FROM D. SHIMP		7/92	
3	REVISED PER CLIENT COMMENTS FROM D. SHIMP		5/92	
2	REVISED PER WICHITA REVOVATIONS		2/92	
1	REVISED PER CLIENT COMMENTS			

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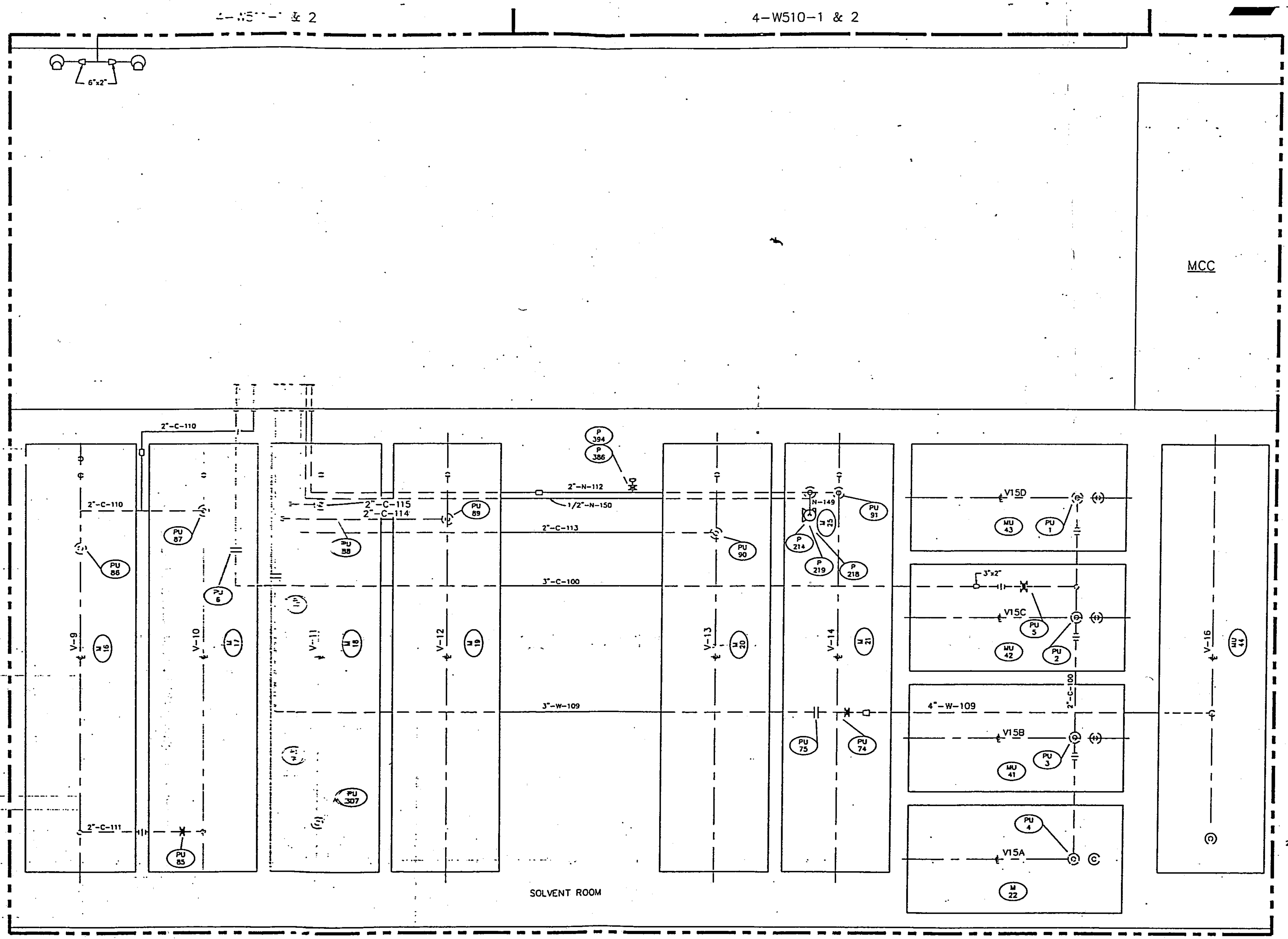
DRAWN	CHECKED	SCALE	DATE
AMES			

TITLE: PIPING TRANSPOSITION
TANK FARM
WICHITA, KANSAS

W522-2

DRAWING NO. 665300-4-W511-2

REV. 4



DRAWING LIMITS

NOTES:

1.) FOR ADDITIONAL INFORMATION ON TAGGED ITEMS SEE THE COMPONENT/ EQUIPMENT DATA SHEET.

2.) THIS DATA FOR EMISSION TESTING ONLY AND NOT TO BE USED FOR PROCESS CONSIDERATION.

SCALE IN FEET

3/8"

REFERENCE DRAWINGS	
P & I D STORAGE TANK ROOM II	4-W404E
P & I D STORAGE TANK ROOM I	4-W404D
PLOT PLAN	4-W050

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
4	GENERAL REVISIONS	WDS	7/21	
3	REVISED PER WICHITA RENOVATIONS		7/92	
2	REVISED PER WICHITA RENOVATIONS		12/91	
1	REVISED PER CLIENTS COMMENTS			

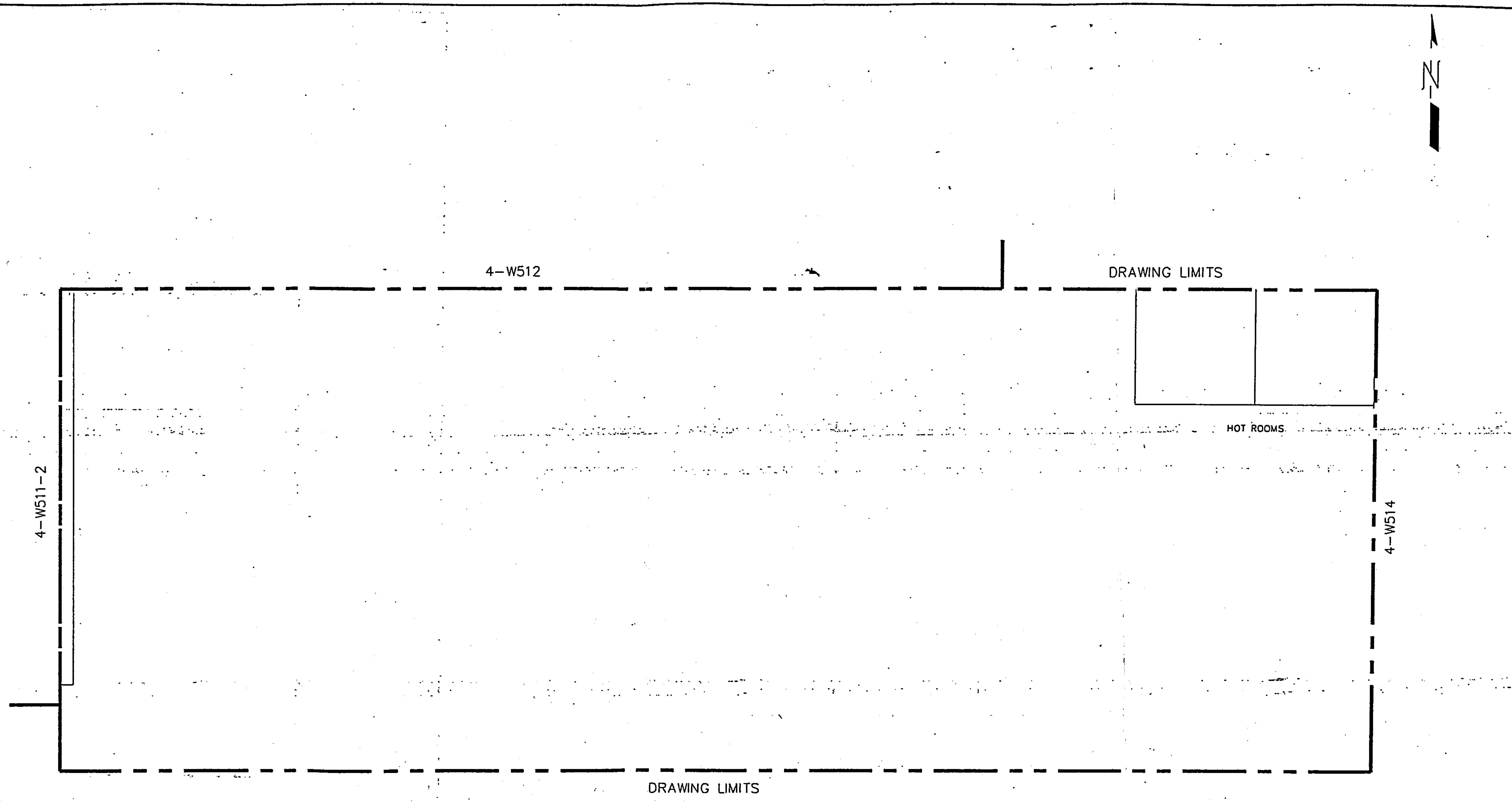
Safety-Kleen

DRAWN	CHECKED	SCALE	DATE

TITLE W512

PIPING TRANSPOSITION
STORAGE TANK ROOM
WICHITA, KANSAS

DRAWING NO. 665300-4-W512 REV. 4



NOTES:

1) FOR ADDITIONAL INFORMATION ON TAGGED ITEMS SEE THE COMPONENT/ EQUIPMENT DATA SHEET.
2) THIS DATA IS FOR EMISSION TESTING ONLY AND NOT TO BE USED FOR PROCESS CONSIDERATION.

SCALE IN FEET 3/8"

REFERENCE DRAWINGS	
SPARGING ROOM II / P & I D	4-W404C
SPARGING ROOM I / P & I D	4-W404B
PLOT PLAN	4-W050

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
3	GENERAL REVISIONS	WDS	7/98	
2	REVISED PER CLIENTS COMMENTS		7/92	
1	REVISED PER CLIENTS COMMENTS			

Safety-Kleen

DRAWN	CHECKED	SCALE	DATE
AMES			

TITLE W513

PIPING TRANSPOSITION
SPARGER ROOM
WICHITA, KANSAS

DRAWING NO. 665300-4-W513

REV. 3

DRAWING LIMITS

DRAWING LIMITS

4-W513

DRAWING LIMITS

NOTE:

ALL SYSTEMS TAKEN

OUT OF SERVICE

DRAWING LIMITS

REV	DATE	DESCRIPTION	DWG. NO.	REFERENCE DRAWING
1		REVISED PER CLIENTS COMMENTS	4-W404A	NEW PROCESS P & ID
2	5/92	REVISED PER PROCESS AREA RENOVATION	4-W050	PLOT PLAN
3	7/92	REVISED PER PROCESS AREA RENOVATION		

USPCI
A Subsidiary of Union Pacific Corporation

FLUOR DANIEL

C.L. AMES
T. SCOTT

PIPING TRANSPOSITION
SOLIDS PROCESS AREA
WICHITA, KANSAS

SCALE: 3/8"=1'-0"

665300-4-W514

SHEET 1 REV. 3

3/22/91

Appendix N-B - Regional Administrator Letter

USPCI
A Subsidiary of
[illegible]nion Pacific Corporation

Hydrocarbon Recovery Services

December 21, 1990

Morris Kay
United States Environmental Protection Agency
Region VII
726 Minnesota Avenue
Kansas City, Kansas 60101

VIA CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Re: Hydrocarbon Recovery Services, Inc. of Wichita, EPA ID. No. KSD007246846, 40 CFR part 265, Subpart BB Program

Mr. Kay:

This letter is sent to notify you that, pursuant to paragraph 265.1061, subparagraph (b), Hydrocarbon Recovery Services, Inc. of Wichita (HRS) is electing to comply with the "2 percent of all valves leaking" standard as an alternative to monthly monitoring of it's valve equipment in hazardous waste light organic liquid service. A performance test of the applicable equipment was completed at our facility on December 17, 1990 and 0% were found to exceed the 500 ppm emission standard. If a leak is detected in any of this equipment it will be repaired pursuant to paragraph 265.1057 (d) and (e). Should you or your staff have any questions please contact me at 316-268-9490.

Sincerely,
HYDROCARBON RECOVERY SERVICES, INC. OF WICHITA

Stephen M Keiter

Stephen Keiter

cc: Thomas Gross, KDHE BOWM
Catherine Orban, HRS-Tulsa
Dave Coker, USPCI-Houston

2549 North New York Street • Wichita, Kansas 67219 • 316/267-5742 • Fax 316/267-8155

Appendix N-C - Monitoring Method and Equipment Documentation

METHOD 21. DETERMINATION OF VOLATILE ORGANIC COMPOUND LEAKS

1. Applicability and Principle

1.1 Applicability. This method applies to the determination of volatile organic compound (VOC) leaks from process equipment. These sources include, but are not limited to, valves, flanges and other connections, pumps and compressors, pressure relief devices, process drains, open-ended valves, pump and compressor seal system degassing vents, accumulator vessel vents, agitator seals, and access door seals.

1.2 Principle. A portable instrument is used to detect VOC leaks from individual sources. The instrument detector type is not specified, but it must meet the specifications and performance criteria contained in Section 3. A leak definition concentration based on a reference compound is specified in each applicable regulation. This procedure is intended to locate and classify leaks only, and is not to be used as a direct measure of mass emission rates from individual sources.

2. Definitions

2.1 Leak Definition Concentration. The local VOC concentration at the surface of a leak source that indicates that a VOC emission (leak) is present. The leak definition is an instrument meter reading based on a reference compound.

2.2 Reference Compound. The VOC species selected as an instrument calibration basis for specification of the leak definition concentration. [For example: If a leak definition concentration is 10,000 ppmv as methane, then any source emission that results in a local concentration that yields a meter reading of 10,000 on an instrument calibrated with methane would be classified as a leak. In this example, the leak definition is 10,000 ppmv, and the reference compound is methane.]

2.3 Calibration Gas. The VOC compound used to adjust the instrument meter reading to a known value. The calibration gas is usually the reference compound at a concentration approximately equal to the leak definition concentration.

2.4 No Detectable Emission. The local VOC concentration at the surface of a leak source that indicates that a VOC emission (leak) is not present. Since background VOC concentrations may exist, and to account for instrument drift and imperfect reproducibility, a difference between the source surface concentration and the local ambient concentration is determined. A difference based on meter readings of less than 5 percent of the leak definition concentration indicates that a VOC emission (leak) is not present. (For example, if the leak definition in a regulation is 10,000 ppmv, then the allowable increase in surface concentration versus local ambient concentration would be 500 ppmv based on the instrument meter readings.)

2.5 Response Factor. The ratio of the known concentration of a VOC compound to the observed meter reading when measured using an instrument calibrated with the reference compound specified in the application regulation.

2.6 Calibration Precision. The degree of agreement between measurements of the same known value, expressed as the relative percentage of the average difference between the meter readings and the known concentration to the known concentration.

2.7 Response Time. The time interval from a step change in VOC concentration at the input of the sampling system to the time at which 90 percent of the corresponding final value is reached as displayed on the instrument readout meter.

3.0 Apparatus

3.1 Monitoring Instrument.

3.1.1 Specifications.

a. The VOC instrument detector shall respond to the compounds being processed. Detector types which may meet this requirement include, but are not limited to, catalytic oxidation, flame ionization, infrared absorption, and photoionization.

b. The instrument shall be capable of measuring the leak definition concentration specified in the regulation.

c. The scale of the instrument meter shall be readable to ±5 percent of the specified leak definition concentration.

d. The instrument shall be equipped with a pump so that a continuous sample is provided to the detector. The nominal sample flow rate shall be 1/2 to 3 liters per minute.

e. The instrument shall be intrinsically safe for operation in explosive atmospheres as defined by the applicable U.S.A. standards (e.g., National Electrical Code by the National Fire Prevention Association).

3.1.2 Performance Criteria.

a. The instrument response factors for the individual compounds to be measured must be less than 10.

b. The instrument response time must be equal to or less than 30 seconds. The response time must be determined for the instrument configuration to be used during testing.

c. The calibration precision must be equal to or less than 10 percent of the calibration gas value.

d. The evaluation procedure for each parameter is given in Section 4.4.

3.1.3 Performance Evaluation Requirements.

a. A response factor must be determined for each compound that is to be measured, either by testing or from reference sources. The response factor tests are required before placing the analyzer into service, but do not have to be repeated at subsequent intervals.

b. The calibration precision test must be completed prior to placing the analyzer into service, and at subsequent 3-month intervals or at the next use whichever is later.

c. The response time test is required prior to placing the instrument into service. If a modification to the sample pumping system of flow configuration is made that would change the response time, a new test is required prior to further use.

3.2 Calibration Gases. The monitoring instrument is calibrated in terms of parts per million by volume (ppmv) of the reference compound specified in the applicable regulation. The calibration gases required for monitoring and instrument performance evaluation are a zero gas (air, <10 ppmv VOC) and a calibration gas in air mixture approximately equal to the leak definition specified in the regulation. If cylinder calibration gas mixtures are used, they must be analyzed and certified by the manufacturer to be within ±2 percent accuracy, and a shelf life must be specified. Cylinder standards must be either reanalyzed or replaced at the end of the specified shelf life. Alternately, calibration gases may be prepared by the user according to any accepted gaseous standards preparation procedure that will yield a mixture accurate to within ±2 percent. Prepared standards must be replaced each day of use unless it can be demonstrated that degradation does not occur during storage.

Calibrations may be performed using a compound other than the reference compound if a conversion factor is determined for that alternative compound so that the resulting meter readings during source surveys can be converted to reference compound results.

4. Procedures

4.1 Pretest Preparations. Perform the instrument evaluation procedures given in Section 4.4 if the evaluation requirements of Section 3.1.3 have not been met.

4.2 Calibration Procedures. Assemble and start up the VOC analyzer according to the manufacturer's instructions. After the appropriate warmup period and zero or internal calibration procedure, introduce the calibration gas into the instrument sample probe. Adjust the instrument meter readout to correspond to the calibration gas value. [Note: If the meter readout cannot be adjusted to the proper value, a malfunction of the analyzer is indicated and corrective actions are necessary before use.]

4.3 Individual Source Surveys.

4.3.1 Type I--Leak Definition Based on Concentration. Place the probe inlet at the surface of the component interface where leakage could occur. Move the probe along the interface periphery while observing the instrument readout. If an increased meter reading is observed, slowly sample the interface where leakage is indicated until the maximum meter reading is obtained. Leave the probe inlet at this maximum reading location for approximately two times the instrument response time. If the maximum observed meter reading is greater than the leak definition in the applicable regulation, record and report the results as specified in the regulation reporting requirements. Examples of the application of this general technique to specific equipment types are:

a. Valves--The most common source of leaks from valves is at the seal between the stem and housing. Place the probe at the interface where the stem exits the packing gland and sample the stem circumference. Also, place the probe at the interface of the packing gland take-up flange seat and sample the periphery. In addition, survey valve housings of multipart assembly at the surface of all interfaces where leaks could occur.

b. Flanges and Other Connections--For welded flanges, place the probe at the outer edge of the flange-gasket interface and sample the circumference of the flange. Sample other types of nonpermanent joints (such as threaded connections) with a similar traverse.

c. Pumps and Compressors--Conduct a circumferential traverse at the outer surface of the pump or compressor shaft and seal interface. If the source is a rotating shaft, position the probe inlet within 1 cm of the shaft seal interface for the survey. If the housing configuration prevents a complete traverse of the shaft periphery, sample all accessible portions. Sample all other joints on the pump or compressor housing where leakage could occur.

d. Pressure Relief Devices--The configuration of most pressure relief devices prevents sampling at the sealing seat interface. For those devices equipped with an enclosed extension, or horn, place the probe inlet at approximately the center of the exhaust area to the atmosphere.

e. Process Drains--For open drains, place the probe inlet at approximately the center of the area open to the atmosphere. For covered drains, place the probe at the surface of the cover interface and conduct a peripheral traverse.

f. Open-Ended Lines or Valves--Place the probe inlet at approximately the center of the opening to the atmosphere.

g. Seal System Degassing Vents and Accumulator Vents--Place the probe inlet at approximately the center of the opening to the atmosphere.

h. Access Door Seals--Place the probe inlet at the surface of the door seal interface and conduct a peripheral traverse.

4.3.2 Type II--"No Detectable Emission".

Determine the local ambient concentration around the source by moving the probe inlet randomly upwind and downwind at a distance of one to two meters from the source. If an interference exists with this determination due to a nearby emission or leak, the local ambient concentration may be determined at distances closer to the source, but in no case shall the distance be less than 25 centimeters. Then move the probe inlet to the surface of the source and conduct a survey as described in 4.3.1. If an increase greater than 5 percent of the leak definition concentration is obtained, record and report the results as specified by the regulation.

For those cases where the regulation requires a specific device installation, or that specified vents be ducted or piped to a control device, the existence of these conditions shall be visually confirmed. When the regulation also requires that no detectable emissions exist, visual observations and sampling surveys are required. Examples of this technique are:

(a) Pump or Compressor Seals--If applicable, determine the type of shaft seal. Perform a survey of the local area ambient VOC concentration and determine if detectable emissions exist as described above.

(b) Seal System Degassing Vents, Accumulator Vessel Vents, Pressure Relief Devices--If applicable, observe whether or not the applicable ducting or piping exists. Also, determine if any sources exist in the ducting or piping where emissions could occur prior to the control device. If the required ducting or piping exists and there are no sources where the emissions could be vented to the atmosphere prior to the control device, then it is presumed that no detectable emissions are present.

4.4 Instrument Evaluation Procedures. At the beginning of the instrument performance evaluation test, assemble and start up the instrument according to the manufacturer's instructions for recommended warmup period and preliminary adjustments.

4.4.1 Response Factor. Calibrate the instrument with the reference compound as specified in the applicable regulation. For each organic species that is to be measured during individual source surveys, obtain or prepare a known standard in air at a concentration of approximately 80 percent of the applicable leak definition unless limited by volatility or explosivity. In these cases, prepare a standard at 90 percent of the saturation concentration, or 70 percent of the lower explosive limit, respectively. Introduce this mixture to the analyzer and record the observed meter reading. Introduce zero air until a stable reading is obtained. Make a total of three measurements by alternating between the known mixture and zero air. Calculate the response factor for each repetition and the average response factor.

Alternatively, if response factors have been published for the compounds of interest for the instrument or detector type, the response factor determination is not required, and existing results may be referenced. Examples of published response factors for flame ionization and catalytic oxidation detectors are included in Section 5.

4.4.2 Calibration Precision. Make a total of three measurements by alternately using zero gas and the specified calibration gas. Record the meter readings. Calculate the average algebraic difference between the meter readings and the known value. Divide this average difference by the known calibration value and multiply by 100 to express the resulting calibration precision as a percentage.

4.4.3 Response Time. Introduce zero gas into the instrument sample probe. When the meter reading has stabilized, switch quickly to the specified calibration gas. Measure the time from switching to when 90 percent of the final stable reading is attained. Perform this test sequence three times and record the results. Calculate the average response time.

5. Bibliography

5.1 DuBose, D. A., and G. E. Harris. Response Factors of VOC Analyzers at a Meter Reading of 10,000 ppmv for Selected Organic Compounds. U.S. Environmental Protection Agency, Research Triangle Park, N.C. Publication No. EPA 600/2-81-051. September 1981.

5.2 Brown, G. E., et al. Response Factors of VOC Analyzers Calibrated with Methane for Selected Organic Compounds. U.S. Environmental Protection Agency, Research Triangle park, N.C. Publication No. EPA 600/2-81-022. May 1981.

5.3 DuBose, D. A., et al. Response of Portable VOC Analyzers to Chemical Mixtures. U.S. Environmental Protection Agency, Research Triangle Park, N.C. Publication No. EPA 600/2-81-110. September 1981.

CERTIFIED CALIBRATION

EPA METHOD 21

COMPANY___________________

INSTRUMENT S/N____________

MODEL_____________________

CALIBRATION GASES: (2)

____

____

	(3) Zero Reading (PPM)	Zero Drift (PPM)	Cal Reading (PPM)	Cal Drift (PPM)	Response Time (SEC)
1.					
2.					
3.					

(1)Mean Value: Zero Drift:_____ ppm Cal Drift:_____ ppm

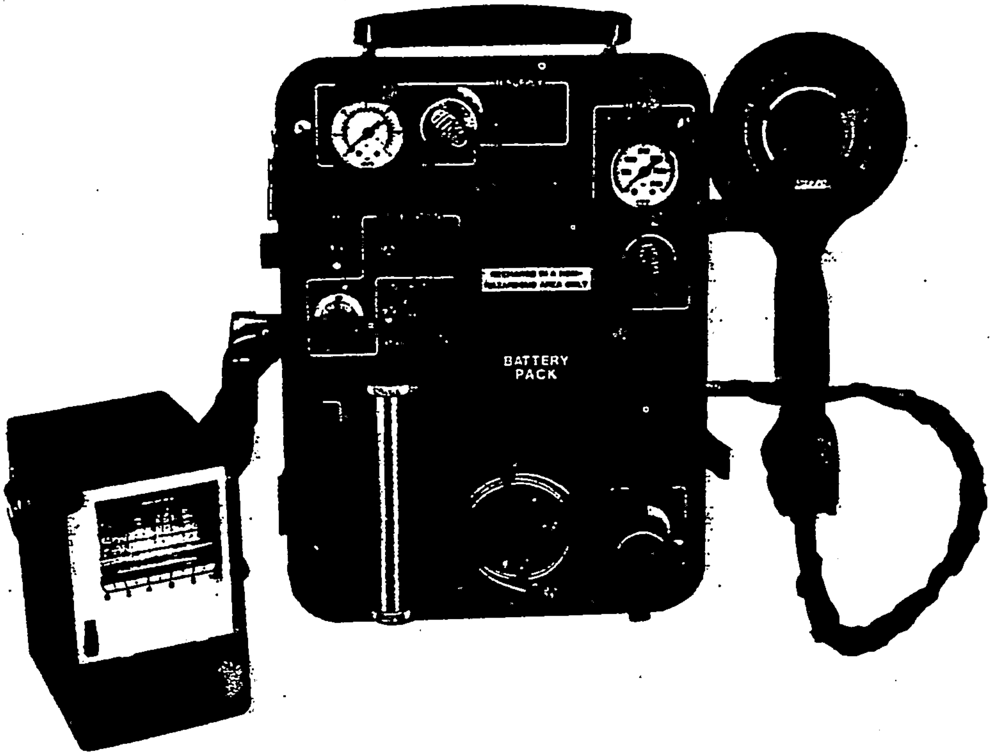
(5)Response Time:______ seconds

$$(4)\text{Calibration Precision} = \frac{\text{Mean Cal Drift}}{\text{Cal Gas Concentration}} \times 100 = \_\_\_\_\%$$

(1) Absolute Value
(2) Calibration Gas Concentration
(3) Zero Reading Must Be Less Than 10ppm
(4) Calibration Precision must be ≤ 10% of Calibration Gas Concentration
(5) Response Time must be ≤ 30 seconds

Calibrated by ___________________

Date ___________________



CENTURY OVA 108 PORTABLE ORGANIC VAPOR ANALYZER

The requirement for accurate and reliable environmental monitoring and leak detection is a high priority for industry. With the increased scope of environmental regulation, industry has a requirement for instrumentation that is application-oriented, and sufficiently flexible to meet changing needs. The dual mode CENTURY OVA 108 Portable Organic Vapor Analyzer is designed to meet these needs.

Several of the many OVA 108 features are:

- Provides continuous, direct readout of total organic vapor concentrations for survey purposes (Mode 1).
- Allows qualitative and quantitative analyses using the gas chromatographic mode (Mode 2).
- It is a light-weight, completely field-portable instrument weighing approximately 5.5 kg (12 lb), that provides eight hours of continuous operation per battery charge.
- Attenuation of ranges is not required.
- FM and BASEEFA certified intrinsically safe for use in Class I, Groups A, B, C, and D, Division 1 hazardous locations.
- Many hundreds of successful field-proven applications have demonstrated the exceptional reliability and ruggedness of this analyzer.
- Uses a flame ionization detector, which does not respond to ambient gases, such as CO and CO_2, and exhibits no sensitivity changes due to variations in relative humidity.

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INTRODUCTION

The CENTURY OVA 108 is a highly sensitive analyzer that allows the detection of trace quantities of volatile organics and still maintains a large dynamic range capability. Using a logarithmic scale, the OVA 108 analyzes organics from 1 to 10 000 parts per million (ppm). This range provides for both low and middle range concentration information important to general environmental monitoring. It also has the ability to monitor the high levels required for process leak detection.

DESCRIPTION

The OVA 108 is a dual mode analyzer combining the features of a continuous survey, direct reading instrument and a gas chromatograph. The survey mode allows the continuous monitoring of total organics to provide the rapid identification of airborne organics. These values are reported directly in ppm methane equivalent. Upon the identification of the "hot spots" or high concentration areas, the gas chromatographic mode can be utilized to further analyze the sample, separating and reporting the various organic materials present and their concentrations. This combination of analytical modes provides the best flexibility necessary to meet the environmental management needs of industry. The OVA 108 is an easy to operate instrument that is able to withstand and surpass the most demanding application use.

PRINCIPLE OF OPERATION

Flame Ionization Detector

The CENTURY OVA 108 utilizes a flame ionization detector to monitor the presence of organic vapors.

The principle benefits of monitoring with a flame ionization detector are:

- Universal organic compound response with approximately the same high sensitivity for all.
- Flame ionization will not respond to changes in relative humidity or changes in CO and CO_2 concentration.
- It is a mass sensing detector which exhibits minimal effects from changes in temperature, pressure, or flow.
- Provides excellent dynamic range and concentration linearity.

Sample gathering is done by using a small diaphragm air pump. Detection requires a hydrogen delivery system, a sample delivery system, and an electronic amplification and display system. The hydrogen delivery system provides an eight hour supply of hydrogen gas (with a precisely controlled flow) to the detector. The sample delivery system provides air to the detector chamber to maintain the flame combustion and introduce the organic air contaminants for analysis. Figure 1 illustrates both the hydrogen flow and air flow patterns in the OVA 108.

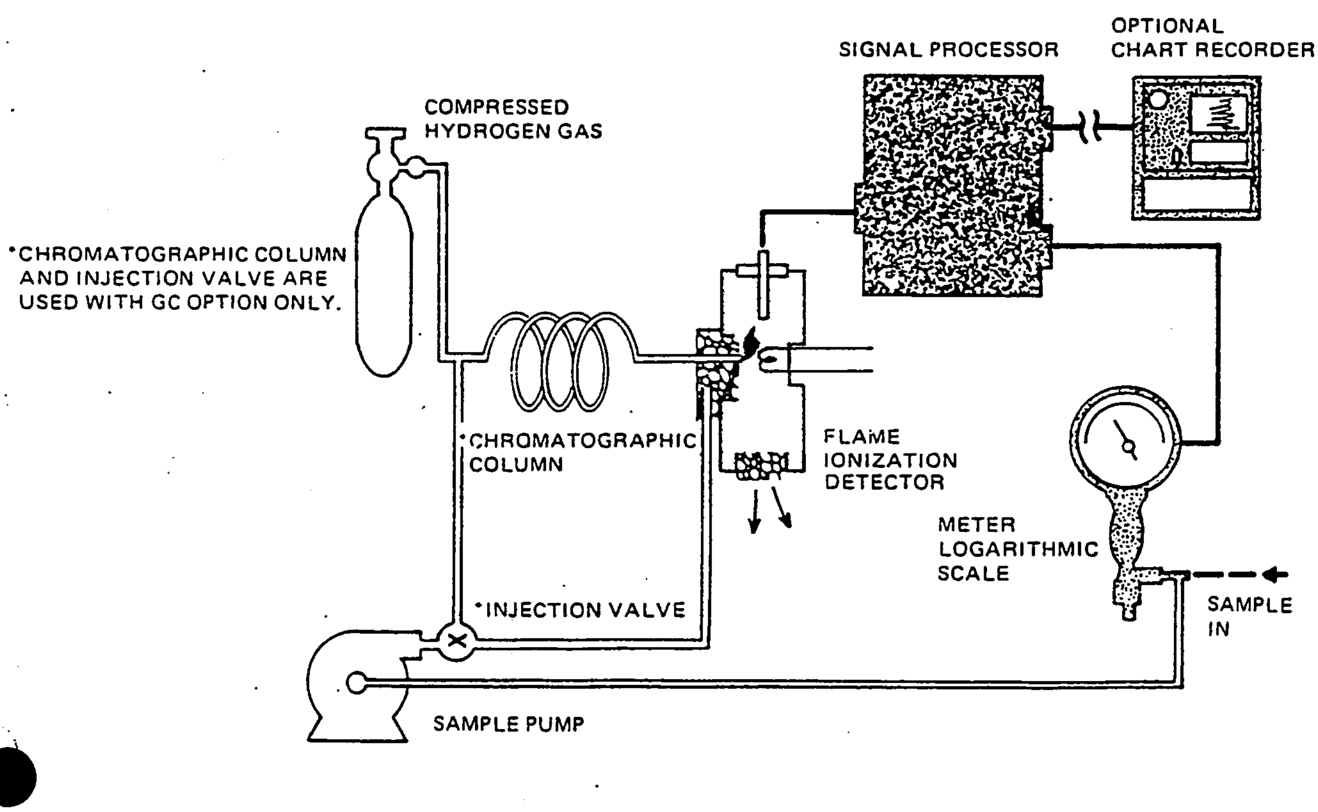


Figure 1. OVA 108 Schematic Diagram

Survey Analysis — Mode 1

In Mode 1, the air sample is delivered continuously to the detector chamber. When an organic vapor is exposed to the hydrogen flame via the air flow, the carbon molecules ionize and a current is carried between the detector electrodes. This current is proportional to the concentration of vapor in the sample. Different compounds will ionize to varying extents in the flame. The OVA 108 is internally calibrated for methane gas, and all survey responses are expressed in methane equivalent. The OVA 108 can be calibrated to read directly for other compounds, (for example, benzene) through the gas select adjustment dial on the instrument front panel.

Chromatographic Analysis — Mode 2

With Mode 2, the OVA 108 functions as a portable gas chromatograph utilizing hydrogen as a carrier gas and a flame ionization detector as the sensor. In this mode, a fixed volume of sample air is injected (by means of an air injection valve) into the chromatographic column which contains a suitable packing material. At the same time that a sample is introduced into the column, the remaining sample air is directed through an integral charcoal filter (not shown in Figure 1) to provide the detector with a supply of pure air.

While moving through the chromatographic column, the sample constituents are separated based on their interaction with the column packing material. As the constituents leave the column, they are carried to the detector and register on the logarithmic meter and the attached optional chart recorder. The time, measured from the moment of sample injection until the compound of interest exits the column, is known as the retention time and serves to identify the compound. The area under the chromatographic peak is proportional to the concentration of the compound in the air sample. The peak height can also be used to determine sample concentration since it closely correlates with peak area. Figure 2 illustrates an example of a logarithmic chromatogram.

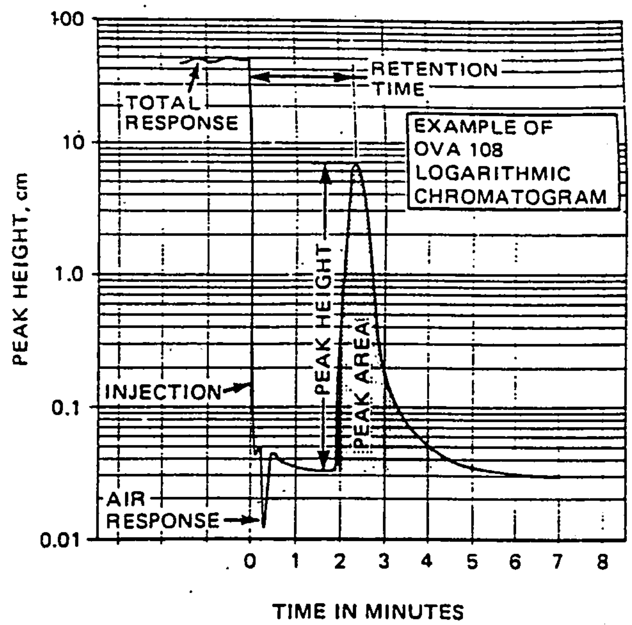


Figure 2. OVA 108 Generalized Chromatogram

OVA 108 APPLICATIONS

The OVA 108 is well-suited for use in the following typical applications:

- Process Leak Detection in the Petroleum, Chemical, or Natural Gas Industries
- Equipment Leaks of Volatile Organic Carbon (VOC), Reference Methods 18 and 22, Fugitive Emissions, EPA 40, Code of Federal Regulations (CFR), Part 60
- Landfill Monitoring
- Benzene Equipment Leaks, Fugitive Emissions Sources, EPA 40, CFR Part 61
- Equipment Leaks of VOC from Onshore Natural Gas Processing Plants, EPA 40, CFR Part 61
- Stack Monitoring for VOC
- Quality Control Monitoring Carbon Absorption Systems

STANDARD SPECIFICATIONS

Readout 1 to 10 000 ppm, logarithmic scale

Minimum Detectable Limit (Methane) 0.5 ppm

Response Time Approximately two seconds for 90% of reading

Fuel for Detector Hydrogen

Carrier Gas for Chromatograph Hydrogen (self-contained tank)

Sample Flow Rate Approximately 2 L/min

Concentration Alarm Audible alarm, user-selectable level

Electric Power 12 V dc rechargeable battery

Voltage Output to Recorder 0 to 5 V dc

Flame Out Indication Audible and visual

Operation Time in Portable Mode Eight hours

Filters Sintered metal, user-cleanable

Nominal Dimensions (Sidepack)
230 × 300 × 100 mm (9 × 12 × 4 in)

Approximate Mass 5.5 kg (12 lb)

PRODUCT SAFETY SPECIFICATIONS

EPA Reference Method 21

The Environmental Protection Agency, Reference Method 21, EPA 40, CFR Part 60, states the performance specifications by which volatile organic compounds (VOC) will be determined. These performance specifications ensure that instrumentation used to monitor VOC will report the data in a timely, accurate, and safe way. The CENTURY OVA 108 meets the specifications of Method 21 as follows:

1. Flame ionization is an approved detector.
2. The instrument shall be intrinsically safe and meet all aspects of Article 500 of the National Electrical Code of the United States — FM I/1/ABCD.
3. The instrument shall measure the prescribed leak level: example, 10 000 ppm.
4. The sampling rate shall be between 1/2 and 3 litres per minute. The OVA 108 sampling rate is 2 litres/ per minute.
5. Accuracy shall be ±5% of the designated leak level.
6. Response time must be less than 30 seconds. The OVA 108 has a response time of approximately two seconds.

Electrical Classification

FM certified intrinsically safe for use in Class I, Groups A, B, C, and D, Division 1 hazardous locations.

BASEEFA certified intrinsically safe, Ex ib, for IIC, Zone 1, Temperature Class T6.

INSTRUMENT ACCESSORIES

(Also Refer to Figure Below)

Dilutor Kit Used to monitor inert atmospheres, or extend the concentration range of the instrument. The dilution ratios are adjustable 5 to 50 times. Specify Part Number 511745-1.

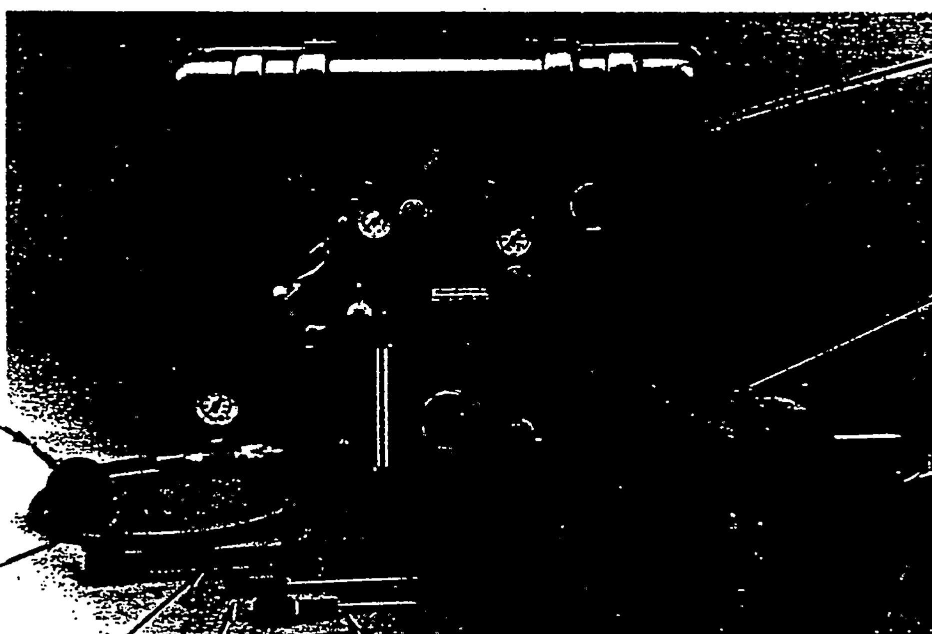
Portable Isothermal Kit (PIP Kit) Used for the temperature control of the OVA columns at 0, 40, and 100°C (32, 104, and 212°F). Specify Part Number 511800-1.

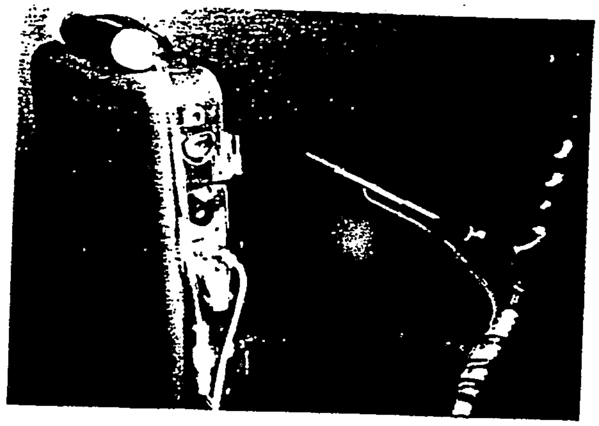
Standard Chromatographic Columns Various column packings available. Specify Part Number 510454, also type and length of column.

Portable Strip Chart Recorder Used for making hard copy records for both Option A and Option B configurations. Specify Part Number 510445-2 for FM certifications, and Part Number 510445-5 for BASEEFA certifications.

Septum Adapter Used for making syringe injections of gases into the instrument. Specify Part Number 510645-1.

Charcoal Filter Adapter Used for zeroing the instrument in contaminated environments. Specify Part Number 510095-1.





Dilutor Kit for CENTURY Organic Vapor Analyzers (OVA)

The Dilutor Kit, Part Number CR010MR, enables the owners of CENTURY Organic Vapor Analyzers to expand the dynamic range of the instrument by 10:1, 25:1, or 50:1. Each Dilutor Kit contains the following equipment:

- Dilutor Fittings
- 10:1 Dilutor Orifice — standard
  (25:1 and 50:1 Orifices are available)
- Charcoal Scrubber
- 1 cm Spacer
- Spiral Wrap
- Velcro Fasteners
- Valve Bracket
- Fine Metering Valve
- Tygon Tubing
- Disposable Charcoal Filters
- O-Rings
- Flexible 1 cm Spacer

A fine Hoke metering valve is employed to accurately control the amount of dilution (charcoal scrubbed air). The exact dilution setting can be recorded from the valve to assure a repeatable dilution.

Using the Dilutor Kit, it is now possible to easily measure samples in concentrations above the full-scale of the meter, monitor inert atmospheres, zero the OVA in contaminated environments, and measure the extent of leaks in equipment from a fixed distance.

For further information, call (203) 853-1616, or write The Foxboro Company, Foxboro, MA 02035.

INTEK CORPORATION
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Houston, Texas 77099
713/498-5855

FOXBORO®

CERTIFIED CALIBRATION

EPA METHOD 21

COMPANY USPCI

INSTRUMENT S/N 41063

MODEL OVA-128

CALIBRATION GASES: (2)

10,000 ppm CH_4 in Air

Zero Air

	(3) Zero Reading (PPM)	Zero Drift (PPM)	Cal Reading (PPM)	Cal Drift (PPM)	Response Time (SEC)
1.	0.1	.1	9800	200	5
2.	0.2	.2	10,000	0	4
3.	0.1	.1	10,000	0	5

(1)Mean Value: Zero Drift: .13 ppm Cal Drift: 67 ppm

(5)Response Time: 5 seconds

$$\text{(4)Calibration Precision} = \frac{\text{Mean Cal Drift} \quad 67}{10,000 \quad \text{Cal Gas Concentration}} \times 100 = 0.67\%$$

(1) Absolute Value
(2) Calibration Gas Concentration
(3) Zero Reading Must Be Less Than 10ppm
(4) Calibration Precision must be ≤ 10% of Calibration Gas Concentration
(5) Response Time must be ≤ 30 seconds

Calibrated by Rudy Verzuh

Date 1/17/91

Appendix N-D - Equipment Lists

Appendix N-D.1 - Piping Component Data Sheets

PIPING COMPONENT DATA SHEETS

For purposes of this project, piping components are identified as any device in a pipe line, where a potential "break" could occur, which would cause harmful fluids or vapors to leak into the environment. Examples of piping components are: valves, flanges, in-line instruments, fittings, nozzles, drains, etc.

BACK GROUND TO FORM DEVELOPMENT

The "component/Equipment Data Sheet" form was developed especially for this project in response to USPCI's request for specific data as detailed in different sections of their "Request for Proposal". The primary purpose of this form is to identify, catalog and document those components which require emission test monitoring, per USPCI's interpretation of EPA regulations.

This form was submitted for review and approval with Flour Daniels's official proposal. The form was modified slightly and approved for use in its present format on 12 Nov 1990, by Mr. Dave Coker, USPCI project manager.

This set of "Piping Component Data Sheets" is arranged in "P-xxx" tag number sequence.

The form itself, which is a Lotus 1-2-3 spread sheet, was created to record data for both mechanical equipment and piping components. The form contains 5 columns. These five columns are:

1. Tag Number: This is the number of the aluminum write-on tag that is attached to a particular component. For the purpose of distinguishing pipe tags from mechanical tags, it was agreed that piping component tags would be assigned a "P" prefix and mechanical equipment tags would be given an "M" prefix. It should be noted that some tag numbers are identical except for having a different alpha character suffix. Usually the situation applies to valves where the valve stem and both flanges require testing. In this case the valve would be numbered P-001, one flange would be P-001a and the other flange would be P-001b. It is also important to note that their were some cases - for reasons of safety - when Flour Daniels personnel could not safely reach a particular component that required a tag. These cases are identified by a "U" suffix to the tag number (i.e. P-xxx U). This suffix indicates that Flour Daniel personnel were unable to attach a tag.

2. Location: The location column is used to identify the most prominent land mark or area in or near which the tagged component can be found. In most cases, the closest piece of equipment is listed.

3. Component/Equipment Name: This column will record the diameter dimension - in inches - and the name of the piping device being listed. In order to be able to group and sort on this column, the devices are listed in a standardized order, first by primary category, then by type and then by method of attachment.

4. Line/Equipment Identification Number: This column is used to identify the number of the pipe line in which the component is installed. The "Pipe Line Number" is assigned in accordance with the procedure described earlier in this manual.

5. Product or service: This column identifies the most common product that flows through a pipe line or the most common utility service the line is supporting. The only products this project is focusing on are Kiln Fuels, Chlorinated Solvents, Non-chlorinated Solvents, Waste Oil, Waste Water, and Incineration Waste Liquids.

Subparts BB & CC Equipment lists

PROCESS BUILDING

TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
C100A	V-15	Union by valve PU1		A
C100B	V-15	Union by valve PU2		A
C100C	V-15	Dresser Sleeve	Under V-15B	C
C100D	V-15	2" valve	Under V-15B	A
C100E	V-15	Union by valve PU3		A
C110	V10-B	V-10 line		
C110A	V10-B	2" elbow south to T		C
C110A	V9-B	to pipe, elbow north to T		C
C114	V12-B	V-12 line		
C114A	V12-B	elbow down, pipe elbow, west pipe		C
C115	V11-B	Line		
C115A	V11-B	2" elbow south, pipe		C
C115B	V11-B	2" elbow down, pipe		C
C115C	V11-B	2" elbow west, pipe		C
DBLDG		Inside Tanks		
M16	V9-B	V-9	Bottom, east	
M16	V9	V-9		
M-16		SOLV STORE TANK	UPPER LVL V-9	
M16A	V9-B	4" port, pipe, 4" to 45 degree, plug		C
M16B	V11-B	4" port, plug	2nd from West	C
M16B	V9-B	4" port, pipe, 4"-2" reducer, 2" pipe		C
M16B	V9-B	to elbow north pipe, to V-10		C
M16E	V9	8" thief hatch, 4" port, 4"-2" reducer,		A,C
M16E	V9	2"-1" reducer to		C
M16F	V9	high level switch		C
M16G	V9	24" manway, 8" line		A
M16G	V9	to conservation vent, 1" bypass,		A
M16G	V9	1" valve		A
M16G	V9	1"manometer, 8" rupture disc		E
M16H	V9	4" port, 4"-2" reducer, plug		C
M16I	V9	4" port, plug		C
M17	V10-B	V-10	Bottom from East	
M17	V10-T	V-10	top from east	
M-17		SOLV STORE TANK	UPPER LVL V-10	
M17A	V10-B	4" port, pipe 4"-2" reducer		C
M17A	V10-B	to 2" pipe to cap		C
M17B	V10-B	4" port, plug	2nd from West	C
M17E	V10-T	8" thief hatch, 4" port, 4"-2" reducer,		A,C
M17E	V10-T	2"-1" reducer to		C
M17F	V10-T	high level switch		C
M17G	V10-T	24" manway, 8" line		A
M17G	V10-T	to conservation vent, 1" bypass,		A
M17G	V10-T	1" valve		A
M17G	V10-T	1"manometer, 8" rupture disc		E
M17H	V10-T	4" port, 4"-2" reducer, plug	2nd from west	C
M17I	V10-T	4" port, 4"-2" reducer 2" plug		C
M18	V11-B	V-11		
M18	V11-T	V-11	top from east	
M-18		SOLV STORE TANK	UPPER LVL V-11	
M18A	V11-B	4" port, pipe, 4"-2" reducer, 2" pipe,	Bottom from East	C

Subparts BB & CC Equipment lists				
PROCESS BUILDING				
TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
M18A	V11-B	cap, 4" port, pipe, 4"-2" reducer,		C
M18A	V11-B	2"-1" reducer		C
M18E	V11-T	8" thief hatch, 4" port, 4"-2" reducer,		A,C
M18E	V11-T	2"-1" reducer to		C
M18F	V11-T	high level switch		C
M18G	V11-T	24" manway, 8" line		A
M18G	V11-T	to conservation vent, 1" bypass,	2nd from west	A
M18G	V11-T	1" valve		A
M18G	V11-T	1"manometer, 8" rupture disc		E
M18H	V11-T	4" port, 4"-2" reducer, 2" plug		C
M18I	V11-T	4" port, 4"-2" reducer 2" pipe, cap		C
M19	V12-T	V-12	top from east	
M-19		SOLV STORE TANK	UPPER LVL V-12	
M19A	V12-B	4" port, pipe, 4"-2" reducer to plug		C
M19A	V12-B	4" port, pipe, 4"-2" reducer to pipe		C
M19B	V12-B	4" port, plug	West	C
M19E	V12-T	8" thief hatch		A
M19F	V12-T	4" port, 4"-2" reducer, 2"-1" reducer		C
M19F	V12-T	high level switch		C
M19G	V12-T	24" manway, 8" line		A
M19G	V12-T	to conservation vent, 1" bypass,		A
M19G	V12-T	1" valve		A
M19G	V12-T	1"manometer, 8" rupture disc		E
M19H	V12-T	4" port, 4"-2" reducer, 2" plug	2nd from west	C
M19I	V12-T	4" port, 4"-2" reducer 2" pipe, cap		C
M20	V13	V-13		
M-20		SOLV STORE TANK	UPPER LVL V-13	
M20A	V13-B	4" port, 4" plug		D
M20C	V13-B	4"port, 4" pipe, 4"-2" reducer	West	D
M20C	V13-B	to 2" plug		D
M20E	V13	thief hatch, blind flange		D
M20F	V13	4" port, 4"-1" reducer, high level switch		D
M20G	V13	24" manway, plate to 2", 2" pipe,		D
M20G	V13	T to 1" valve, pipe, T to plug		D
M20H	V13	4" port, 4"-2" reducer, 2" pipe	2nd west	D
M20H	V13	to union, plug		D
M20I	V13	4" port, 4"-2" reducer, 2" pipe	1st west	D
M20I	V13	to cap		D
M-21		SOLV STORE TANK	UPPER LVL V-14	
M21A	V14-B	4" port, 4" pipe, cap	Bottom, East	C
M21B	V14-B	4" port, plug		C
M21C	V14-B	4" port, 4" pipe, 4"-2", reducer	Bottom West	C
M21C	V14-B	to 2" pipe, 2" cap		C
M21E	V14-T	thief hatch		A
M21F	V14-T	4" port, 4"-1" reducer, high level switch		A
M21G	V14-T	2" manway		A
M21G	V14-T	2" conservation vent		E
M21G	V14-T	1" manometer		E
M21G	V14-T	1" bypass, 1" valve		A
M21G	V14-T	8" rupture disc		E

Subparts BB & CC Equipment lists PROCESS BUILDING				
TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
M21H	V14-T	4" port, 4"-2" reducer, plug	2nd west	C
M21I	V14-T	4" port, 4"-2" reducer, pipe, cap	1st west	C
M22	V15A-T	V-15A	Top	
M-22		SOLV STORE TANK	UPPER LVL V-15A	
M22D	V15A-T	8" thief hatch	from South	A
M22E	V15A-T	4" port, highlevel detector		C
M22F	V15A-T	24" manwayto 2" conservation vent		A,E
M22F	V15A-T	6" rupture disc		E
M22G	V15A-T	4" port, 4"-2" reducer, 2" plug	North	C
M-23		MANIFOLD TXFER PUMP	GRNDLVL P-4	B
M-24		GASOLINE STORE TANK	GRND LVL V-17	A
M-25		DIESEL INJECTION PUMP	GRND LVL P-11	B
M-28		PORTBL DIAPHM TXR PUMP	GRND LVL P-6	B
M-29		PORTBL DIAPHM TXR PUMP	GRND LVL P-7	B
M-30		PORTBL DIAPHM TXR PUMP	GRND LVL P-8	B
M31	V1-T	V-1	top	
M31	V1	V-1	sides & bottom	
M-31		WASTE WATER	TANK TOP V-1	
M31A	V1-T	8" thief hatch		A
M31B	V1-T	1" port, high level alarm		C
M31C	V1-T	12" port, flange to conservation		A
M31C	V1-T	vent, flange, rupture disc		C,E
M31D	V1-T	2" port, plug, south		C
M31E	V1-T	2" port, plug, center		C
M31F	V1-T	2" port, plug, north		C
M31G	V1-T	1/2 port to pressure indicator		C
M31H	V1	1" port, plug	top south side	C
M31I	V1	24" manway	bottom, west	A
M31I	V1	2" port, pipe	bottom, east	C
M32	V2-T	V-2	top	
M32	V2-T	V-2	sides & bottom	
M-32		CHLOR RECYCLE SOLVENT	TANK TOP V-2	
M32A	V2-T	8" thief hatch		A
M32B	V2-T	1" port, high level alarm		C
M32C	V2-T	12" port, flange to conservation		A,E
M32C	V2-T	vent, flange, rupture disc		C,E
M32D	V2-T	2" port, plug	top east edge	C
M32H	V2	2" port, plug	west side from top	C
M32I	V2	3" port, plug		C
M32J	V2	24" manway		A
M32K	V2	12" port, blank flange		A
M32L	V2-B	2" port, plug	at bottom	C
M32M	V2-T	2" port, plug	east at top	C
M32M	V2-B	2" port, pipe to	east at bottom	C
M32N	V2-B	2' x 3' manway	bottom south side	A
M33	V3-T	V-3	top	
M33	V3-T	V-3	sides and bottom	
M-33		KILN FUEL TANK	TANK TOP V-3	
M33A	V3-T	8" thief hatch		A
M33B	V3-T	1" port, high level alarm		C

Subparts BB & CC Equipment lists PROCESS BUILDING				
TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
M33C	V3-T	12" port, flange, conservation vent,		C,E
M33C	V3-T	flange, rupture disc		E
M33D	V3-T	2" port, 2"-1" reducer, 1" plug	east	C
M33E	V3-T	2" port, plug	center	C
M33F	V3-T	2" port, plug	west	C
M33G	V3-T	1/2 port, to pressure indicator		C
M33H	V3-T	1" port and plug	east, top	C
M33H	V3-B	2" port, pipe	east bottom	C
M33I	V3-B	24" manway	south bottom	A
M34	V4-T	V-4	top	
M34	V4-T	V-4	sides and bottom	
M-34		KILN FUEL TANK	TANK TOP V-4	
M34A	V4-T	8" thief hatch		A
M34B	V4-T	1" port, high level alarm		C
M34C	V4-T	12" port, flange, conservation vent		A,C,E
M34C	V4-T	flange, rupture disc		E
M34D	V4-T	2" port, 2"-1" reducer, 1" plug	east	C
M34E	V4-T	2" port, plug	center	C
M34F	V4-T	2" port, plug	west	C
M34H	V4-T	1" plug east	east top	C
M34I	V4-B	24" manway	bottom south	A
M35	V5-T	V-5	top	
M35	V5-T	V-5	sides and bottom	
M-35		KILN FUEL TANK	TANK TOP V-5	
M35A	V5-T	8" thief hatch		A
M35B	V5-T	1" port, high level alarm		C
M35C	V5-T	16" port to flange		E
M35C	V5-T	2" conservation vent, rupture disc		E
M35D	V5-T	4" port, plug	southedge	C
M35E	V5-T	2" port, plug	south of center	C
M35F	V5-T	2" port, plug	center	C
M35H	V5-T	3" port, plug in west at top		C
M35I	V5-T	3" port, plug	north top	C
M35J	V5-B	2'x3' manway	northwest bottom	A
M35K	V5-B	2'x3' manway	east bottom	A
M36	V6-T	V-6		
M36	V6-T	V-6	sides and bottom	
M-36		KILN FUEL TANK	TANK TOP V-6	
M36A	V6-T	8" thief hatch		A
M36B	V6-T	1" port to high lever alarm		C
M36C	V6-T	16" port to flange		A
M36D	V6-T	4" port, plug		C
M36E	V6-T	2" port, plug	north of center	C
M36F	V6-T	2" port, plug	center	C
M36I	V6-B	2'x3' manway	northway bottom	A
M36I	V6-B	3" port, pipe to flange	east bottom	A
M37	V7-T	V-7		
M37	V7	V-7	sides	
M-37		KILN FUEL TANK	TANK TOP V-7	
M37A	V7-T	8" thief hatch		A

Subparts BB & CC Equipment lists

PROCESS BUILDING

TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
M37B	V7-T	1" port, high level alarm		C
M37C	V7-T	12" port, flange to conservation vent		C,E
M37C	V7-T	flange, rupture disc		E
M37D	V7-T	2" port, 2"-1" reducer, 1" plug	west of center	C
M37E	V7-T	2" port, plug	center	C
M37F	V7-T	2" port plug	east of center	C
M37H	V7-T	1" port, plug	top west	C
M37H	V7-B	24" manway	north bottom	A
M38	V8-T	V-8		
M38	V8	V-8	sides	
M-38		INCINERATION WASTE LIQUID	TANK TOP V-8	
M38A	V8-T	8" thief hatch		A
M38B	V8-T	1" port, high level alarm		C
M38C	V8-T	12" port, flange to conservation vent		A,E
M38C	V8-T	flange, rupture disc		E
M38D	V8-T	2" port, 2"-1"reducer, 1" plug	west of center	C
M38E	V8-T	2" port, plug	center	C
M38F	V8-T	2" port, plug	east of center	C
M38H	V8-T	1" port & plug	top west	C
M38I	V8-B	24" manway	north bottom	A
M-39		PORTBL DIAPHM TXR PUMP	GRND LVL P-9	B
M-40		PORTBL DIAPHM TXR PUMP	GRND LVL P-10	B
M41	V15B-T	V-15B		
M42	V15C-T	V-15C		
M43	V15D-T	V-15D		
MU22A	V15A-B	4"port, 4"plug	GRND LVL CV-	C
MU22B	V15A-B	2"port, pipe, plug		C
MU22C	V15A-B	2"port, pipe, cap	Bottom South	C
MU41A	V15B-B	4"port, 4"-2" reducer, pipe, 2"plug		C
MU41B	V15B-B	2" port, 2" pipe, cap	East	C
MU41C	V15B-B	2" port, 2" pipe, cap	West	C
MU41F	V15B-T	24" manway to 8" thief hatch	from South	A
MU41F	V15B-T	high level alarm, 2" conservation vent		C,E
MU41F	V15B-T	6" rupture disc		E
MU41G	V15B-T	4" port, 4"-2" reducer, 2" plug	North	C
MU42A	V15C-B	4" port, 4"-2" reducer, 2" plug		C
MU42B	V15C-B	2" port, pipe, cap	East	C
MU42C	V15C-B	2" port, pipe, cap	West	C
MU42F	V15C-T	24" Manway to 8" thief hatch	from South	A
MU42F	V15C-T	High level alarm, 2" conservation vent		C,E
MU42F	V15C-T	6" rupture disc		E
MU42G	V15C-T	4" port, 4"-2" reducer, 2" plug	North	C
MU43B	V15-B	2" port, 2" pipe, cap	East	C
MU43C	V15-B	2" port, 2" pipe, cap	West	C
MU43F	V15D-T	24" manway to 8" thief hatch	from South	A
MU43F	V15D-T	High level alarm, 2" conservation vent		C,E
MU43F	V15D-T	6" rupture disc		E
MU43G	V15D-T	4" port, 4"-2" reducer, 2" plug	North	C
MU44A	V16-T	8" thief hatch	Top West	A
MU44B	V16-T	Highlevel switch		C

Subparts BB & CC Equipment lists PROCESS BUILDING				
TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
MU44C	V16-T	24" manway conservation vent	Top Center	E
MU44C	V16-T	rupture disk		E
MU44D	V16-T	4"port, pipe, 4"-2" reducer	East Top	C
MU44D	V16-T	to 2" plug		C
MU44E	V16-T	4" port, 4" plug		C
MU44F	V16-B	4" port, pipe, collar, pipe, cap	West End	C
MU44G	V16-B	4"port, 4"-2" reducer, 2" plug		C
MU44H	V16-B	4" Plug		C
N112	V14-B	Line/V-14		C
N112A	V14-B	2" T	V-14 line	C
N112B	V14-B	2" union		A
N112C	V14-B	2"collar in N112		C
N112D	V14-B	2" elbow, 2" pipe		C
N112E	V14-B	Union		A
OU-2	V15C-B	2" pipe, 2" valve, 2" pipe, 2" T		C
P-007		3" FLANGE (150 #, R.F.)	TANK FARM C-10	A
P-008		3" FLANGE (150 #, R.F.)	TANK FARM C-10	A
P-009		3" VALVE (GATE - SCREWED)	TANK FARM C-10	A
P-010		3" HOSE CONNECTION	TANK FARM C-10	A
P-011		1/2" VALVE (BALL SCREWED)	TANK FARM C-10	A
P-012		2" VALUE (BALL SCREWED)	TANK FARM C-10	A
P-013		2" HOSE CONNECTION	TANK FARM C-10	A
P-014		1/2" VALVE (BALL SCREWED)	TANK FARM C-10	A
P-015		3" VALVE (GATE)	TANK FARM K-15	A
P-015A		3" FLANGE (150 #)	TANK FARM K-15	A
P-015B		3" FLANGE (150 #)	TANK FARM K-15	A
P-016U		3" FLANGE (150 #, SLIP ON)	TANK FARM K-15	A
P-017		3" FLANGE (150 #, SLIP ON)	TANK FARM K-15	A
P-018		3" VALVE (GATE - SCREWED)	TANK FARM K-15	A
P-019		1/2"VALVE (BALL SCREWED)	TANK FARM K-15	A
P-039		4" VALVE (GATE - FLANGED)	TANK FARM K-15	A
P-039A		4" FLANGE (150 #)	TANK FARM K-15	A
P-039B		4" FLANGE (150 #)	TANK FARM K-15	A
P-040U		4" FLANGE (150 #) & BLIND	TANK FARM K-15	A
P-041		4" VALVE (GATE - 150 #)	TANK FARM K-15	A
P-041A		4" FLANGE (150 #)	TANK FARM K-15	A
P-041B		4" FLANGE (150 #)	TANK FARM K-15	A
P-042		1/2" VALVE (BALL SCREWED)	TANK FARM K-15	A
P-043		4" FLANGE (150 #) & BLIND	TANK FARM K-15	A
P-044		4" VALVE (BALL 150 #)	TANK FARM K-15	A
P-044A		4" FLANGE (150 # - SLIP ON)	TANK FARM K-15	A
P-044B		4" FLANGE (150 # - SLIP ON)	TANK FARM K-15	A
P-045		4" FLANGE (150 #)	TANK FARM K-15	A
P-046		6" FLANGE (150 #)	TANK FARM K-15	A
P-047		6" FLANGE (150 #)	TANK FARM K-15	A
P-048		6" FLANGE (150 #)	TANK FARM K-15	A
P-049		4" FLANGE (150 #)	TANK FARM K-15	A
P-050		4" HOSE COUPLING	TANK FARM K-15	A
P-051		4" FLANGE (150 #) & BLIND	TANK FARM K-15	A
P-052		4" VALVE (BALL 150 #)	TANK FARM K-15	A

Subparts BB & CC Equipment lists

PROCESS BUILDING

TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
P-052A		4" FLANGE (150# - SLIP ON)	TANK FARM K-15	A
P-052B		4" FLANGE (150# - SLIP ON)	TANK FARM K-15	A
P-053		4" FLANGE (150# - SLIP ON)	TANK FARM K-15	A
P-054		4" FLANGE (150 #) & BLIND	TANK FARM K-15	A
P-055		4" VALVE (GATE - 150 #)	TANK FARM K-15	A
P-055A		4" FLANGE (150 #)	TANK FARM K-15	A
P-055B		4" FLANGE (150 #)	TANK FARM K-15	A
P-056		3" VALVE (GATE - 150 #)	TANK FARM K-15	A
P-056A		3" FLANGE (150 #)	TANK FARM K-15	A
P-056B		3" FLANGE (150 #)	TANK FARM K-15	A
P-057		3" FLANGE (150 #)	TANK FARM K-15	A
P-058		2" PLUG (SCREWED)	TANK FARM K-15	A
P-059		3" FLANGE (150 #)	TANK FARM K-15	A
P-060		3" FLANGE (150 #)	TANK FARM K-15	A
P-061		3" VALVE (GATE-150 # SCRWD)	TANK FARM K-15	A
P-062		3" HOSE CONNECTION	TANK FARM K-15	A
P-063		1/2" VALVE (BALL SCREWED)	TANK FARM K-15	A
P-064		3" VALVE (GATE-150 # FLNGD)	TANK FARM K-15	A
P-064A		3" FLANGE (150 #)	TANK FARM K-15	A
P-064B		3" FLANGE (150 #)	TANK FARM K-15	A
P-065		3" FLANGE (150 #)	TANK FARM K-15	A
P-066		3" FLANGE (150 #)	TANK FARM K-15	A
P-067		3" VALVE (GATE - SCREWED)	TANK FARM K-15	A
P-068		3" HOSE CONNECTION	TANK FARM K-15	A
P-069		1/2" VALVE (BALL SCREWED)	TANK FARM K-15	A
P-070		3" HOSE CONNECTION	TANK FARM K-15	A
P-078	V-16	3" FLANGE (RAISED FACE)	TANK FARM W-1	A
P-079	V-16	3" FLANGE (RAISED FACE)	TANK FARM W-1	A
P-080	V-16	3" VALVE (GATE - SCREWED)	TANK FARM W-1	A
P-081	V-16	1/2" VALVE (BALL SCREWED)	TANK FARM W-1	A
P-082	V-16	1/2" OPEN PIPE	TANK FARM W-1	A
P-083	M-23	3" HOSE CONNECTION	TANK FARM W-1	A
P-084	V-10	1/2" HOSE CONNECTION	TANK FARM K-15	A
P-085U	V-9	2" VALVE (BALL SCREWED)	SOLV.ROOM C-1	A
P-086U	V-10	2" VALVE (BALL SCREWED)	SOLV.ROOM C-1	A
P-087U	V-11	2" VALVE (BALL SCREWED)	SOLV.ROOM C-1	A
P-088U	V-12	2" VALVE (BALL SCREWED)	SOLV.ROOM C-1	A
P-089U	V-13	2" VALVE (BALL SCREWED)	SOLV.ROOM C-1	A
P-090U	V-14	2" VALVE (BALL SCREWED)	SOLV.ROOM C-1	A
P-091U	V-11	2" VALVE (BALL SCREWED)	SOLV.ROOM N-1	A
P-092	V-11	2" VALVE (BALL SCREWED)	PROC AREA C-11	A
P-093	V-11	1/2" VALVE (BALL SCREWED)	PROC AREA C-11	A
P-094	V-11	2" HOSE CONNECTION	PROC AREA C-11	A
P-095	V-11	2" VALVE (BALL SCREWED)	TANK FARM C-11	A
P-096	V-11	1/2"VALVE (BALL SCREWED)	TANK FARM C-11	A
P-097	V-11	2" HOSE CONNECTION	TANK FARM C-11	A
P-098	V-12	2" VALVE (BALL SCREWED)	PROC AREA C-11	A
P-099	V-12	1/2"VALVE (BALL SCREWED)	PROC AREA C-11	A
P-100	V-12	2" HOSE CONNECTION	PROC AREA C-11	A
P-101	V-12	2" VALVE (BALL SCREWED)	TANK FARM C-11	A

Subparts BB & CC Equipment lists

PROCESS BUILDING

TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
P-102	V-12	1/2"VALVE (BALL SCREWED)	TANK FARM C-11	A
P-103	V-12	1/2" DRAIN (OPEN)	TANK FARM C-11	A
P-104	V-12	2" HOSE CONNECTION	TANK FARM C-11	A
P-105	V-13	2" VALVE (BALL SCREWED)	PROC AREA C-11	A
PU-5A	V15C-B	union	behind	A
P-106	V-13	1/2"VALVE (BALL SCREWED)	PROC AREA C-11	A
P-107	V-13	2" HOSE CONNECTION	PROC AREA C-11	A
P-108	V-13	2" VALVE (BALL SCREWED)	TANK FARM C-11	D
P-109	V-13	1/2"VALVE (BALL SCREWED)	TANK FARM C-11	D
P-110	V-13	2" HOSE CONNECTION	TANK FARM C-11	D
P-111	V-14	2" VALVE	PROC AREA N-11	A
P-112	V-14	2" VALVE (BALL SCREWED)	TANK FARM N-11	A
P-113	V-14	1/2"VALVE (BALL SCREWED)	TANK FARM N-11	A
P-114		4" FLANGE (150 #)	PROC AREA K-15	A
P-114A		2" UNION	PROC AREA K-15	A
P-114B		2" BALL VALVE	PROC AREA K-15	A
P-114C		UNION	PROC AREA K-15	A
P-114D		2"HOSE CONNECTION	PROC AREA K-15	A
P-115	V-26	2" HOSE CONNECTION	TANK FARM N-11	A
P-116	M-58	4" VALVE (PLUG - 150 #)	PROC AREA K-15	A
P-121	M-58	4" FLANGE (150 #) PUMP NOZZ	PROC AREA K-15	A
P-122	M-58	3" FLANGE (150 #)	PROC AREA K-15	A
P-123		3" VALVE (BALL 150# FLANGED)	PROC AREA K-15	A
P-123A		3" FLANGE (150 #)	PROC AREA K-15	A
P-123B		3" FLANGE (150 #)	PROC AREA K-15	A
P-128	M-56	3" VALVE (PLUG - 150 #)	PROC AREA K-15	A
P-128A	M-56	3" NOZZLE (150 #) VAT	PROC AREA K-15	A
P-128B	M-56	3" FLANGE (150 #)	PROC AREA K-15	A
P-129		3" FLANGE (150 #)	PROC AREA K-15	A
P12A		2" union	behind	A
P-130U		3" FLANGE (150 #)	PROC AREA K-15	A
P-133		3" FLANGE (150 #)	PROC AREA K-15	A
P-134		3" FLANGE (150 #)	PROC AREA K-15	A
P-135		3" FLANGE (150 #)	PROC AREA K-15	A
P-136		4" VALVE (BALL SCREWED)	PROC AREA K-15	A
P-137		1/2" VALVE (BALL SCREWED)	PROC AREA K-15	A
P-138		4" HOSE CONNECTION	PROC AREA K-15	A
P-139		4" VALVE (GATE - 150 #)	TANK FARM K-15	A
P-139A		4" FLANGE (150 #)	TANK FARM K-15	A
P-139B		4" FLANGE (150 #)	TANK FARM K-15	A
P-140		3" VALVE (GATE - 150 #)	TANK FARM K-15	A
P-140A		3" FLANGE (150 #)	TANK FARM K-15	A
P-140B		3" FLANGE (150 #)	TANK FARM K-15	A
P-141		3" VALVE (GATE - 150 #)	TANK FARM K-15	A
P-141A		3" FLANGE (150 #)	TANK FARM K-15	A
P-141B		3" FLANGE (150 #)	TANK FARM K-15	A
P-142		3" VALVE (GATE - 150 #)	TANK FARM K-15	A
P-142A		3" FLANGE (150 #)	TANK FARM K-15	A
P-142B		3" FLANGE (150 #)	TANK FARM K-15	A
P143	V5-B	3" port, pipe, flange	west bottom	C,A

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PROCESS BUILDING

TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
P-143		3" VALVE (GATE - 150 #)	TANK FARM K-15	A
P-143A		3" FLANGE (150 #)	TANK FARM K-15	A
P-143B		3" FLANGE (150 #)	TANK FARM K-15	A
P144	V5-T	3" port, pipe, flange	down	C
P-144		3" FLANGE (150 #)	TANK FARM K-15	A
P145	V6-B	valve		A
P-145		3" VALVE (GATE - 150 #)	TANK FARM K-15	A
P-145A		3" FLANGE (150 #)	TANK FARM K-15	A
P-145B		3" FLANGE (150 #)	TANK FARM K-15	A
P146	V6-T	3" port, pipe, flange	down	C
P-146		3" FLANGE (150 #)	TANK FARM K-15	A
P-147		3" FLANGE (150 #)	TANK FARM K-15	A
P-148		3" FLANGE (150 #)	TANK FARM K-15	A
P-149		3" FLANGE (150 #)	TANK FARM K-15	A
P15	V7-B	3" port, pipe, valve	bottom	A
P-150		3" FLANGE (150 #)	TANK FARM K-15	A
P-151		3" VALVE (BALL SCREWED)	TANK FARM K-15	A
P-152		1" VALVE (BALL - SCREWED)	TANK FARM K-15	A
P-153		3" HOSE CONNECTION	TANK FARM K-15	A
P-154		1" VALVE (CHECK - SCREWED)	TANK FARM K-15	A
P-155		1" VALVE (BALL - SCREWED)	TANK FARM K-15	A
P-156		4" VALVE (BALL 150 #)	TANK FARM K-15	A
P-156A		4" FLANGE (150 #)	TANK FARM K-15	A
P-156B		4" FLANGE (150 #)@EXP.JNT.	TANK FARM K-15	A
P-157		4" FLANGE (150 #)@PUMP	TANK FARM K-15	A
P-158		2" HOSE CONNECTION	TANK FARM C-11	A
P-159		2" VALVE (BALL SCREWED)	TANK FARM C-11	A
P159A		2' union	behind NORTH M	A
P160		1/2" valve	behind NORTH M	A
P-160		1/2" VALVE (BALL SCREWED)	TANK FARM C-11	A
P-161		2" HOSE CONNECTION	TANK FARM C-11	A
P-162		2" VALVE (BALL SCREWED)	TANK FARM C-11	A
P-163		1/2" VALVE (BALL SCREWED)	TANK FARM C-11	A
P207	V3-B	(cap)		C
P-207		2" VALVE (BALL SCREWED)	TANK FARM K-15	A
P-208		2" VALVE (BALL SCREWED)	TANK FARM K-15	A
P208A		union	behind	A
P-209		1/2" VALVE (BALL SCREWED)	TANK FARM K-15	A
P-210		2" HOSE CONNECTION	TANK FARM K-15	A
P-211		1" VALVE (BALL - SCREWED)	PROC AREA K-15	A
P-212		2" to 1" reducer, hose connect	PROC AREA K-15	C,A
P-213		1" VALVE (BALL - SCREWED)	PROC AREA K-15	A
P-214	V-14B	1/2" VALVE (BALL SCREWED)	TANK FARM N-11	A
P214A	V14-B	2" valve, 2"-1/2" T, 2" pipe	TANK FARM N-11	A
P-215		1/2" VALVE (BALL SCREWED)	TANK FARM N-15	A
P-216U		1/2" HOSE CONNECTION	PROC AREA N-15	A
P-217U		1/2" HOSE CONNECTION	PROC AREA N-15	A
P-218A		2" VALVE (GATE - SCREWED)	TANK FARM N-14	A
P-219		1.5" VALVE (BALL SCREWED)	TANK FARM N-14	A
P-220	V-8	3" HOSE CONNECTION	TANK FARM I-130	A

Subparts BB & CC Equipment lists

PROCESS BUILDING

TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
P-221		1/2" VALVE (BALL SCREWED)	TANK FARM I-130	A
P-222		3" VALVE (GATE - SCREWED)	TANK FARM I-130	A
P-223		3" FLANGE (RAISED FACE)	TANK FARM I-130	A
P-224U		3" FLANGE (RAISED FACE)	TANK FARM I-130	A
P-225U		3" FLANGE (RAISED FACE)	TANK FARM I-130	A
P226	V7-B	2" port, pipe	west bottom	C
P-226		2" VALVE (BALL SCREWED)	TANK FARM K-14	A
P226A	V7	2" union		A
P-227		2" CAP (SCREWED)	TANK FARM K-14	C
P228A		union	behind	A
P-228		2" VALVE (BALL SCREWED)	TANK FARM K-14	A
P-229		1/2" VALVE (BALL SCREWED)	TANK FARM K-14	A
P-230		2" HOSE CONNECTION	TANK FARM K-14	A
P-231	V-1	3" VALVE (GATE - SCREWED)	TANK FARM I-131	A
P-232	V-1	1/2" VALVE (BALL SCREWED)	TANK FARM I-131	A
P-233	V-1	3" HOSE CONNECTION	TANK FARM I-131	A
P-234	V-1	3" FLANGE (RAISED FACE)	TANK FARM I-131	A
P-235	V-1	2" COUPLING, PLUGGED	TANK FARM I-131	C
P-236	V-1	3" FLANGE (RAISED FACE)	TANK FARM I-131	A
P-237	V-1	3" FLANGE (RAISED FACE)	TANK FARM I-131	A
P238	V4-B	2" port, pipe	bottom, west	C
P-238		2" VALVE (BALL SCREWED)	TANK FARM K-14	A
P238A	V4-B	T up to union		C
P239	V8-B	2" port, pipe	bottom west	C
P-239		2" VALVE (BALL SCREWED)	TANK FARM I-147	A
P239A	V8-B	to union	TANK FARM I-147	A
P239B	V-8	2' UNION	TANK FARM I-147	A
P-240U		2" CAP (SCREWED)	TANK FARM I-147	C
P-241		2" VALVE (BALL SCREWED)	TANK FARM I-147	A
P241A		2" union	behind	A
P241B		2" union		A
P-242		2" HOSE CONNECTION	TANK FARM I-147	A
P-243		1/2" VALVE (BALL SCREWED)	TANK FARM I-147	A
P-244		1/2" DRAIN LINE (OPEN)	TANK FARM I-147	A
P247	V4-B	T to 2"-1"reducer		C
P247	V4-B	1" pipe		C
P-247		1" VALVE (BALL - SCREWED)	TANK FARM K-14	A
P248	V4-B	to elbow south, plug, THREADED	TANK FARM K-14	C
P249A		union	behind	A
P-249		2" VALVE (BALL SCREWED)	TANK FARM K-14	A
P-250		1/2" VALVE (BALL SCREWED)	TANK FARM K-14	A
P-251		2" HOSE CONNECTION	TANK FARM K-14	A
P-252		2" UNION (OPEN)	TANK FARM -132	A
P-253		2" VALVE (BALL SCREWED)	TANK FARM -132	A
P-254		1/2" VALVE (BALL SCREWED)	TANK FARM -132	A
P-255		2" HOSE CONNECTION	TANK FARM -132	A
P-256	V-16	2" VALVE (BALL SCREWED)	TANK FARM W-1	A
P256A	V-16	2" union	behind	A
P-257	V-16	1/2" VALVE (BALL SCREWED)	TANK FARM W-1	A
P-258	V-16	2" HOSE CONNECTION	TANK FARM W-1	A

Subparts BB & CC Equipment lists				
PROCESS BUILDING				
TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
P259	V2-B	2" port, pipe	northwest	C
P259	V2-B	to elbow up, pipe		C
P-259	V2-B	2" VALVE (BALL SCREWED)	TANK FARM C-14	A
P259A	V2-B	to union	TANK FARM C-14	A
P-260		1/2" VALVE	TANK FARM C-14	A
P-261		2" VALVE (BALL SCREWED)	TANK FARM C-14	A
P-262		2" HOSE CONNECTION	TANK FARM C-14	A
P-262A		UNION	TANK FARM C-14	A
P-262B		UNION	TANK FARM C-14	A
P268	V8-B	3" port, pipe, valve	bottom valve	C
P-263	V-1	2" HOSE CONNECTION	TANK FARM W-1	A
P263A		union	behind	A
P-264		1/2" VALVE (BALL SCREWED)	TANK FARM W-1	A
P-265		2" VALVE (BALL SCREWED)	TANK FARM W-1	A
P266	V-1B	to flange, to ball valve, to flange		C
P-266	V-1B	3" VALVE (PLUG - 150 # FLNGD)	TANK FARM W-1	A
P-268		3" VALVE (PLUG-150 # FLNGD)	TANK FARM I-143	A
P270	V-1	to valve, pipe, to elbow up, pipe		C
P-270		2" VALVE (BALL SCREWED)	TANK FARM W-1	A
P270A	V-1	to union		A
P270A	V-1	3" port, pipe to	bottom valve	C
P271	V2	valve,pipe		C
P-271		2" VALVE (BALL SCREWED)	TANK FARM C-14	A
P272	V2	to quick connect		
P-272		2" HOSE CONNECTION	TANK FARM C-14	A
P273	V5-B	2" port,pipe,valve,pipe	southwest bottom	C
P273	V5-B	to elbow up, pipe		C
P-273		2" VALVE (BALL SCREWED)	TANK FARM K-13	A
P273A	V5-B	to union		A
P-274		2" HOSE CONNECTION	TANK FARM K-13	A
P275	V6-B	2" port, pipe, valve to	southeast bottom	C
P275	V6-B	elbow pipe to		C
P-275		2" VALVE (BALL SCREWED)	TANK FARM K-13	A
P275A	V6-B	union		A
P-376		2" HOSE CONNECTION	TANK FARM K-134	
P277	V5	3" port, pipe, flange	flexlink to P278	C
P-277		- FLANGE (150 #)	TANK FARM K-14	A
P278	V6-T	3" port, pipe, flange	flexlink to P277	C
P-278		- FLANGE (150 #)	TANK FARM K-14	A
P-308		1/2 ELL (OPEN)	TANK FARM K-15	A
P-323		2" VALVE (BALL SCREWED)	TANK FARM K-17	A
P324		2"valve	pump station line	
P-324		1/2" VALVE (BALL SCREWED)	TANK FARM K-17	A
P325		1/2 valve	pump station line 4	
P-325		2" HOSE CONNECTION	TANK FARM K-17	A
P325A		2" union	pump station line	
P-326		2" VALVE (BALL SCREWED)	PROC AREA K-17	A
P-327		1/2" VALVE (BALL SCREWED)	PROC AREA K-17	A
P-328		2" HOSE CONNECTION	PROC AREA K-17	A
P330		2"valve	pump station line	

Subparts BB & CC Equipment lists PROCESS BUILDING				
TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
P-330		2" VALVE (BALL SCREWED)	TANK FARM K-17	A
P330A		2" union	pump station line	A
P331		1/2 valve	pump station line	A
P-331		1/2" VALVE (BALL SCREWED)	TANK FARM K-17	A
P332		2" quick connect	pump station line	
P-332		2" HOSE CONNECTION	TANK FARM K-17	A
P-333		2" VALVE (BALL SCREWED)	PROC AREA K-17	A
P-334		1/2" VALVE (BALL SCREWED)	PROC AREA K-17	A
P334-A		2" quick connect	pump station line	
P-335		2" HOSE CONNECTION	PROC AREA K-17	A
P337		2"valve	pump station line	
P-337		2" VALVE (BALL SCREWED)	TANK FARM K-17	A
P334-B		2"valve	pump station K-17	A
P337A		2" union	pump station K-17	A
P334-C		2" union	pump station K-17	A
P338		1/2 valve	pump station K-17	A
P334-D		1/2 valve	pump station K-17	A
P339		2" quick connect	pump station line	
P-340		2" VALVE (BALL SCREWED)	PROC AREA K-17	A
P-341		1/2" VALVE (BALL SCREWED)	PROC AREA K-17	A
P-342		2" HOSE CONNECTION	PROC AREA K-17	A
P-345		4" FLANGE	PROC AREA K-18	A
P-346		4" VALVE (BALL SCREWED)	PROC AREA K-18	A
P-347		4" FLANGE	PROC AREA K-18	A
P-348		6" VALVE (PLUG-150#)	PROC AREA K-18	A
P-349		6" FLANGE (150#-SLIP ON)	PROC AREA K-18	A
P-350		6" FLANGE (150#-SLIP ON)	PROC AREA K-18	A
P-351		6" FLANGE (150#-SLIP ON)	PROC AREA K-18	A
P-352		6" FLANGE (150#-STRAINER)	PROC AREA K-18	A
P-353		4" FLANGE (150#) PUMP NOZZLE	PROC AREA K-18	A
P-354		4" VALVE (BALL SCREWED)	PROC AREA K-18	A
P-355		4" FLANGE (150#) PUMP NOZZLE	PROC AREA K-15	A
P-356		4" VALVE (BALL SCREWED)	PROC AREA K-15	A
P-358		1" VALVE (BALL - SCREWED)	PROC AREA K-15	A
P-359		1" VALVE (BALL SCREWED)	PROC AREA K-18	A
P371	V10-B	2" valve, elbow west		A
P371A	V10-B	to union, 2" pipe, elbow with pipe		A
P382	V14-B	2" T in N112		C
P382	V14-B	2" pipe, 2" ball valve, 2" pipe, cap		C
P39	V5-B	to valve		A
P406	V12-B	to 2" gate valve to plug		A
P407	V13-B	4" port, 4" collar, 4" pipe		C
P407	V13-B	to 4"-2" reducer, 2" pipe, 2" Ball valve		C,A
P407	V13-B	to 2" pipe, to 2" quick connect		C,A
P408	V6-B	4" port, flange to	bottom valve	A
P409	V5-B	4" port, pipe to flange	bottom valve	A
P55	V6-B	4" valve		A
P56	V4-B	3" port, pipe, flange	bottom valve	A
P64	V3-B	3" port, pipe, flange	bottom valve	A
P64	V3-B	valve, flange		A

Subparts BB & CC Equipment lists

PROCESS BUILDING

TAG#	Tank #	Equipment Description	Equip.Location	Required Method of Compliance*
P91	V14-B	4" port, 4" pipe, 4"-2" reducer,		C
P91	V14-B	2" pipe, 2" ball valve		A
P91	V14-B	2" line		C
P92A		union	behind	A
PU1	V15D-B	4"port,pipe, 4"-2" reducer, 2" plug		C
PU1A	V15D-B	4"port, 4"-2" reducer, 2" pipe		C
PU1A	V15D-B	2"-1" reducer, 1" pipe, 1" valve		C,A
PU1A	V15D-B	1" pipe, 1" union, 1" hose	(Mineral Oil)	A
PU-2	V15C-B	4" port, 4"-2" reducer		C
PU3	V15B-B	4"port, 4"-2" reducer, pipe		C
PU3	V15B-B	2"valve, pipe, 2"T		C,A
PU306	V11-B	1" pipe, , check valve		C
PU306	V11-B	check valve, pipe, cap		C
PU307	V11-B	1" valve, pipe, elbow, 1" pipe		C
PU383	V13-B	with plug		C
PU4	V15A-B	4" port, 4"-2" reducer		C
PU4	V15A-B	2"pipe, 2" ball valve, pipe		C,A
PU4	V15A-B	elbow north		C
PU5	V-15	2" valve	By V-15C	A
PU5A	V-15	2" T		C
PU5-B	V-15	2" elbow		C
PU5C	V-15	2" union		A
PU5D	V-15	2"-3" expansion		C
PU6	V-15	3" flange		A
PU74	V16-T	3" ball valve		A
PU74A	V16-B	4"port, pipe, 4"-3" reducer		C
PU74B	V16-B	4"elbow, collar, pipe	East End	C
PU75	V16-T	3" flange	Line W109	A
PU76	V16-T	3" flange		A
PU77	V16-T	3" flange		A
PU85	V10-B	4" port, pipe, 4"-2" reducer		C
PU85	V10-B	to 2" pipe, 2" elbow south to		C
PU85	V10-B	2" valve, 2" pipe to		A
PU85A	V10-B	2" union, pipe to V-9		A
PU86	V9-B	4" port, 4"-2" reducer, 2" pipe	2nd from west	C
PU86	V9-B	to 2" valve, pipe, north		A
PU86A	V9-B	union pipe, elbow west		C
PU87	V10-B	4" port, 4"-2" reducer, pipe	1st from West	C
PU87A	V10-B	2" union, pipe		A
PU88	V11-B	4" port, 4"-2" reducer, 2" pipe,		C
PU88	V11-B	2" valve, 2" pipe to		A
PU88A	V11-B	2" union		A
PU89	V12-B	4" port, 4"-2" reducer, 2" pipe	2nd from West	C
PU89	V12-B	to 2" ball valve, 2" pipe to		A
PU89A	V12-B	Union Pipe, 2" elbow		C
PU90	V13-B	4" port, 4" pipe, 4"-2" reducer	2nd West	C
PU90	V13-B	to 2" pipe, 2" valve		A
PU90	V13-B	to 2" pipe, 2" elbow, 2" pipe cap		C

Appendix N-D.2 - Piping Line List

PIPING LINE LIST

Piping line lists have been developed for each HRI plant. These lists are computer generated off of the Autocad P & ID drawings. The lists identify each of the pipe lines that were included in the scope of the work. "Write-On" aluminum tags were attached to each piping component (valves, flanges, in-line devices, fittings, etc) that were installed in the lines. Water, air, utility and other lines carrying non-harmful products are specifically omitted from these lists, even though they may support the process lines that are included in this listing.

The "Line List Form" contains five columns. The information contained in each is as follows:

1. Line Number: The number of the pipe is indicated in this column.

2. Line Size: The diameter of the pipe line - in inches - is shown in this column.

3. Line Service: The service of the line (i.e. product being transported) is indicated in this column. For purposes of this project, the line service is limited to those identified on the "Pipe Line Numbering System" page proceeding this one.

4. From: This column indicates the origin or departure point of the listed pipe line.

5. To: This column indicates the final or destination point of the listed pipe line.

PIPE LINE LIST
WICHITA

Date: 05/17/93 By: DAS

LINE NO.	SIZE	SERVICE	FROM	TO
100	3" 2"	C	TANKS 15A, 15B, 15C, & 15D	LOWER NORTH & SOUTH MANIFOLDS
101	3" 2"	C	CONDENSATE/SEPARATOR	CONDENSATE/SEPARATOR PUMP:DRYER & COND.
102	2" 1" 3/4"	C	CONDENSATE SEPARATOR TRIM	
108	2"	C	FUTURE WATER LINE IN SOLVENT ROOM	TANK FARM
109	4" 3" 2"	W	V-16	LOWER NORTH & SOUTH MANIFOLDS
110	2"	C	V-9 & V-10	LOWER NORTH & SOUTH MANIFOLDS
112	2"	W	V-14	UPPER NORTH & SOUTH MANIFOLDS
113	2"	C	V-13	LOWER NORTH & SOUTH MANIFOLDS
114	2"	C	V-12	LOWER NORTH & SOUTH MANIFOLDS
115	2"	C	V-11	LOWER NORTH & SOUTH MANIFOLDS
130	3"	IWL	SOUTH MANIFOLD	V-8
131	3"	IWL	SOUTH MANIFOLD	V-8
132	2"	N	LOWER NORTH MANIFOLD	
134	2"	K	V-6 DRAIN	
135	2"	K	V-5 DRAIN	
[illegible]	1"	IWL	V-8	VENT LINE
138	1"	IWL	V-7	VENT LINE
141	2"	C	V-2	LOWER NORTH MANIFOLD
142	3"		V-1 OUTLET	
143	3"	IWL	V-8 OUTLET	
144	2"	C	V-2 OUTLET	
145		X	V-5	V-6
146	2"	X	V-4	LOWER NORTH MANIFOLD
147	2"	IWL	V-8	LOWER NORTH MANIFOLD
148	2"	X	V-7	LOWER NORTH MANIFOLD
149	2"	N	DEISEL TANK	DEISEL PUMP
150	1/2"	N	DEISEL PUMP & TANK	MIXING VAT AREA
151	6"	K	V-26	K-153
152	6"	K	V-26	K-153
153	4"	K	V-26	VAUGHAN PUMP
155	3" 2" 1/2"	K	V-4	SOUTH MANIFOLD
156	3"	K	V-3	SOUTH MANIFOLD
157	3"	K	V-7	SOUTH MANIFOLD
169	2"	C	DRYER	PORTABLE FILTER
170	2"	C	PORTABLE FILTER	EXCHANGER

PIPE LINE LIST
WICHITA

Date: 05/17/93 By: DAS

LINE NO.	LINE SIZE	SERVICE	FROM	TO
171	8"	C	PICK UP HOODS	BLOWER
172	8"	C	GRANULATOR	BLOWER
173	8"	C	BLOWER	CYCLONE
176	2"	K	NORTH MANIFOLD	PROCESS AREA
177	2"	K	NORTH MANIFOLD	PROCESS AREA
178	2"	K	NORTH MANIFOLD	PROCESS AREA
179	2"	K	PROCESS AREA	V-26
181	6"	K	V-26	DISPERSER
182	4"	K	V-26	DISPERSER

Appendix N-D.3 - Equipment Data Sheets

EQUIPMENT DATA SHEETS

The equipment Data Sheets are used to identify, catalog and document that equipment which requires emission test monitoring. This set of "Equipment Data Sheets" is arranged first by process area or unit, then by equipment type and finally in "M-xxx" Tag number sequence. Their are 7 data columns and their uses are as follows:

1. Tag Number: This is the number of the aluminum write-on tag that Flour Daniel personnel attached to each piece of equipment. As mentioned earlier mechanical tags are assigned an "M" prefix. It is also important to note that their were some cases - for reasons of safety - when Flour Daniel people could not safely reach an equipment trim device even though it was recognized it should be tagged and tested. In these cases, a "U" suffix has been assigned to the tag number (i.e. "M-xxxU"). This means that Flour Daniel personnel were Unable to attach a tag.

2. Location: The location column is used to identify the location the equipment tag can be found. Generally this will either be "Tank Top" or "Ground Level".

3. Component/Equipment Name: This column gives the name of the listed equipment item.

4. Component/Equipment number: This column gives the equipment number.

5. Unit Process System: Data in this column identifies the "Processing Unit" the component is servicing or is in associated with.

6. P & ID Drawing Reference Number: This column references the drawing number of the P & ID on which the specific equipment item is shown.

7. Vendor / Fabricator: This column identifies the name of the company that fabricated the item of equipment listed. In the case of storage tanks and vessels, Flour daniel personnel could not find equipment name tags attached to the tank or vessel and consequently the data appearing in this column is N/A or Not Available. Pumps and other rotating equipment were the few equipment items on which name plates could be found.

UNITED STATES POLLUTION CONTROL INC.
HYDROCARBON RECYCLERS INC. – PROJECT
EQUIPMENT DATA SHEET – WICHITA

PLANT LOCATION: WICHITA — FD CONTRACT No. 665300

TAG No.	LOCATION	COMPONENT / EQUIPMENT NAME	COMP. EQUIP. ID No.	UNIT PROCESS SYSTEM	P & ID REF. DWG.	VENDOR / FABRICATOR
M–01	GRND LVL	CONDEN SEPARATOR PUMP	P–1	GRIND RM	W404A	GRUNDFOSS
M–02	GRND LVL	CONDEN SEPARATOR TANK	V–18	GRIND RM	W404A	
M–16	UPPER LVL	SOLV STORE TANK	V–9	SOL STOR	W404D	
M–17	UPPER LVL	SOLV STORE TANK	V–10	SOL STOR	W404D	
M–18	UPPER LVL	SOLV STORE TANK	V–11	SOL STOR	W404D	
M–19	UPPER LVL	SOLV STORE TANK	V–12	SOL STOR	W404D	
M–20	UPPER LVL	SOLV STORE TANK	V–13	SOL STOR	W404D	
M–21	UPPER LVL	SOLV STORE TANK	V–14	SOL STOR	W404D	
M–22	UPPER LVL	SOLV STORE TANK	V–15 A	SOL STOR	W404E	
M–23	GRND LVL	MANIFOLD TXFER PUMP	P–4	TNK FARM	W404H	VAUGHN
M–24	GRND LVL	GASOLINE STORAGE TANK	V–17	SOL STOR	W404F	
M–25	GRND LVL	DIESEL INJECTION PUMP	P–11	DRUM PROC	W404F	CAT
M–28	GRND LVL	PORTBL DIAPHM TXR PUMP	P–6	DRUM PROC	W404F	ROPER
M–29	GRND LVL	PORTBL DIAPHM TXR PUMP	P–7	DRUM PROC	W404F	ROPER
M–30	GRND LVL	PORTBL DIAPHM TXR PUMP	P–8	DRUM PROC	W404F	ROPER
M–31	TANK TOP	WASTE WATER	V–1	TNK FARM	W404G	STECO
M–32	TANK TOP	CHLOR RECYCLE SOLVENT	V–2	TNK FARM	W404G	STECO
M–33	TANK TOP	KILN FUEL TANK	V–3	TNK FARM	W404G	STECO
M–34	TANK TOP	KILN FUEL TANK	V–4	TNK FARM	W404G	STECO
M–35	TANK TOP	KILN FUEL TANK	V–5	TNK FARM	W404H	
M–36	TANK TOP	KILN FUEL TANK	V–6	TNK FARM	W404H	
M–37	TANK TOP	KILN FUEL TANK	V–7	TNK FARM	W404H	STECO
M–38	TANK TOP	INCINERATION WASTE LIQUD	V–8	TNK FARM	W404H	STECO
M–39	GRND LVL	PORTBL DIAPHM TXR PUMP	P–9	DRUM PROC	W404F	ROPER
M–40	GRND LVL	PORTBL DIAPHM TXR PUMP	P–10	DRUM PROC	W404F	ROPER
M–41	UPPER LVL	SOLV STORE TANK	V–15 B	SOL STOR	W404E	
M–42	UPPER LVL	SOLV STORE TANK	V–15 C	SOL STOR	W404E	
M–43	UPPER LVL	SOLV STORE TANK	V–15 D	SOL STOR	W404E	
M–44	UPPER LVL	SOLV STORE TANK	V–16	SOL STOR	W404E	
M–45	GRND LVL	STEAM DRYER	V–19	GRIND RM	W404A	
M–46	GRND LVL	SHREDDER	V–20	GRIND RM	W404A	
M–47	GRND LVL	GRANULATOR	V–21	GRIND RM	W404A	
M–48	GRND LVL	CYCLONE	V–23	GRIND RM	W404A	
M–49	GRND LVL	BAGHOUSE	V–22	GRIND RM	W404A	
M–50	GRND LVL	COLLECTION TANK	V–24	GRIND RM	W404A	
M–51	GRND LVL	EXHAUST FAN	P–12	GRIND RM	W404A	
M–52	GRND LVL	SCREW CONVEYOR	CV–1	GRIND RM	W404A	
M–53	GRND LVL	CONDEN SEP. (DUP.M–02)	V–18	GRIND RM	W404A	
M–54	GRND LVL	PUMP (DUP.M–01)	P–18	GRIND RM	W404A	
M–55	GRND LVL	EXCHANGER	E–1	GRIND RM	W404A	
M–56	GRND LVL	GRINDING PUMP	P–5A	DRUM PROC	W404F	VAUGHN
M–58	GRND LVL	GRINDING PUMP	P–5	DRUM PROC	W404F	VAUGHN
M–62	GRND LVL	SCREW CONVEYOR	CV–2	GRIND RM	W404A	
M–66	GRND LVL	CENTRIFUGAL PUMP	P–28	TNK FARM	W510.1	ING RAND
M–67	GRND LVL	PORTBL DIAPHM TXR PUMP	P–32	DRUM PRO	W404F	SANDPIPER
M–68	GRND LVL	PORTBL DIAPHM TXR PUMP	P–29	DRUN PRO	W404F	WILDEN
M–69	GRND LVL	PORTBL DIAPHM TXR PUMP	P–30	DRUN PRO	W404F	WILDEN
M–70	GRND LVL	PORTBL DIAPHM TXR PUMP	P–31	DRUN PRO	W404F	ARO

TAGS M02 & M53 ARE THE SAME PIECE OF EQUIPMENT. TAGS M01 & M54 ARE THE SAME PIECE OF EQUIPMENT

Appendix N-D.4 - Location of Equipment Monitoring Points

LOCATION OF EQUIPMENT MONITORING POINTS
Wichita Plant Only

This "Equipment Monitoring Location List" was developed for use at HRI's Wichita plant. Its purpose is to identify by location potential leak or emission points for the listed tanks. This list is in leiu of attaching an aluminum "Write-On Tag" as was done at the San Antonio plant.

The form contains eleven columns which are used as follows:

1. Tank Number: The tank identification number is shown in this column.

2. Tank Location: The process area location of the tank is provided in this column.

3. Contents / Service: The contents that the tank is normally expected to hold are listed in this column.

4. thru 9. Location on Tank of Potential Leak Points: A number is listed in the applicable location column to indicate the number of potential leak points that exist for that particular location on the tank.

10. Total: This column contains the total sum of all potential leak points that exist for the listed tank.

11. Comments: Special remarks pertaining to the tank are listed in this column.

UNITED STATES POLLUTION CONTROL INC.
HYDROCARBON RECYCLERS INC. – PROJECT

EQUIPMENT MONITORING POINTS

PLANT LOCATION: WICHITA

TANK No.	LOCATION	CONTENTS/ SERVICE	NUMBER OF MONITOR POINT							COMMENTS
			TOP	BOTTOM	NORTH	EAST	SOUTH	WEST	TOTAL	
V–01	K.F. STORE	WASTE WATER	6			1	1	1	9	
V–02	K.F. STORE	CHLOR RECYCLE SOLVENT	6			1	1		8	
V–03	K.F. STORE	KILN FUEL	3			2	1	5	11	
V–04	K.F. STORE	KILN FUEL	6	1		1		1	9	
V–05	K.F. STORE	KILN FUEL	6		1	1	1	1	10	
V–06	K.F. STORE	KILN FUEL	6				1	1	8	
V–07	K.F. STORE	KILN FUEL	6		1	1		1	9	
V–08	K.F. STORE	INCINERTR WASTE LIQUIDS	6	1	1	1		1	10	
V–09	SOLV STORE	CHLORINATED SOLVENTS	3	2					5	
V–10	SOLV STORE	CHLORINATED SOLVENTS	3	3					6	
V–11	SOLV STORE	CHLORINATED SOLVENTS	3	2					5	
V–12	SOLV STORE	CHLORINATED SOLVENTS	3	3					6	
V–13	SOLV STORE	CHLORINATED SOLVENTS	4	3					7	
V–14	SOLV STORE	NON–CHLORINATED SOLVENTS	4	3					7	
V–15 A	SOLV STORE	WASTE OIL	3	1	2				6	
V–15 B	SOLV STORE	WASTE OIL	2	1	2				5	
V–15 C	SOLV STORE	WASTE OIL	2	1	2				5	
V–15 D	SOLV STORE	WASTE OIL	2	1	2				5	
V–16	SOLV STORE	WASTE WATER		3					3	
V–17	SOLV STORE	GASOLINE TANK	2			2		1	5	
V–26	PROCESS	KILN FUEL				3		1	4	
									143	

UNITED STATES POLLUTION CONTROL INC.
HYDROCARBON RECYCLERS INC

DATE: 17 MAY 93

WICHITA EQUIPMENT TRIM

PLANT LOCATION: WICHITA

PREPARED BY: DAS

EQUIP	EQUIPMENT	AREA	ACCESS HOLES		INSTRUMENTATION						VALVES				VENT	PLUG	BLND	NZLE	OTHR	TOTAL	COMMENTS
No.	NAME	UNIT	MAN	HAND	TEMP	PRES	LEVL	SGHT	FLOW	OTHR	SAFTY	DRAIN	CONV	OTHER			FLNG				
V-19	STEAM DRYER	GRIND RM			2						2	2		2				5		13	
V-20	SHREDDER	GRIND RM																	1	1	
V-21	GRINDER	GRIND RM																	2	2	
V-23	CYCLONE	GRIND RM																2	1	3	
V-22	BAGHOUSE	GRIND RM																1		1	
V-24	COLLECTION TANK	GRIND RM		1												2		2		5	
P-12	BLOWER	GRIND RM																2		2	
V-25	SCREW CONVEYOR	GRIND RM												1					2	3	
V-18	CONDENSATE SEPARATOR	GRIND RM		1	1	2	1				1	3	1		1			3		14	
P-13	PUMP																	2		2	
E-1	EXCHANGER				1													4		5	

Appendix N-E - Equipment Designated As No Detectable Emissions

Be it known that I, as the designated authorizing individual for USPCI Hydrocarbon Recovery Services, Inc. of Wichita, have designated the following pumps as meeting the criteria from 40 CFR Part 265.1052, paragraphs (e)(1) through (3). These pumps are eligible for the exemption from the monthly monitoring required of pumps in light liquid hazardous waste service and will be monitored on an annual basis and when leaks become visually apparent.

Stephen M Hester   5/12/93

Name   Date

Pump Identification No.	Type and Description
M - 28	Pneumatic #P-6
M - 29	Pneumatic #P-7
M - 30	Pneumatic #P-8
M - 39	Pneumatic #P-9
M - 40	Pneumatic #P-10
M - 67	Pneumatic #P-32
M - 68	Pneumatic #P-29
M - 69	Pneumatic #P-30
M - 70	Pneumatic #P-31

Appendix N-F - Monitoring Results and Repair Reports

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: Wichita HRS USEPA ID NUMBER: KSD007246846 Date: 12/15/90

Instrument Operator: D. Wilcox Calibration Gas ID#: lot 31995 Daily Calibration Check: 10,000 ppm CH4

Instrument ID#: 20859 Inspector's Name: Ron Rassbergen Inspector's Signature: [signature]

Pipeline/Process ID: K 153 (Process Area) Type of Material Service: Kiln Fuel

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
3" Ball Valve near middle process unit	P123		<10ppm
2" Ball Valve near middle process unit	P124		15ppm
2" Ball Valve near middle process unit	P126		<10ppm
2" Hose Connection near middle unit	P127	Connected	
3" Plug Valve off middle unit	P128		<10ppm
2" Hose Connection near middle unit	P125	Connected	
4" Ball Valve at Process Area manifold	P136		<10ppm
1/2" = = = = = =	P137		<10ppm
4" Hose Connection at Process Manifold	P138	Capped	<10ppm

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRE-WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/15/10

Instrument Operator: D. Coker Calibration Gas ID#: LOT 31495 Daily Calibration Check: 10 ppm Methane

Instrument ID#: 20859 Inspector's Name: Ron Robertson Inspector's Signature:

Pipeline/Process ID: C115 Type of Material Service: CHLORINATED ORGANIC LIQUIDS/

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
2" BALL VALVE PAH MAN.	P-92		15 ppm
1/2" Ball Valve AT DH. MAN.	P-93		<10 ppm
2" Hose Connection AT DA MAN	P-94	CAPPED	<10 ppm
2" BALL VALVE AT MAN.	P-95		<10 ppm
1/2" Ball Valve AT T.M.	P-96		<10 ppm
2" Hose Connection AT TM.	P-97		<10 ppm

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: Wichita - HRS　　USEPA ID NUMBER: KSD007246846　　Date: 12/11/90

Instrument Operator: D Gorick　　Calibration Gas ID#: LOT 3995　　Daily Calibration Check: 10,000 ppm CH_4

Instrument ID#: 20859　　Inspector's Name: R. Robertson　　Inspector's Signature: [signature]

Pipeline/Process ID: K153 (Tank Farm)　　Type of Material Service: Kiln Fuel

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
4" Gate Valve Between Tanks V5+V6	P139		<10 ppm
3" Gate Valve Near Tank V6	P140		<10 ppm
" " " " " V5	P141		<10 ppm
3" Gate Valve Between V5+V6	P142		<10 ppm
" " " " " "	P143	<10 ppm	~~[illegible] ppm~~
" " " " " "	P145		<10 ppm
3" Ball Valve at Truck Bay Manifold	P151		<10 ppm
1" " " " " "	" P152	OPEN ENDED, BG. #1	22 ppm
Hose Connection " " "	" P153	~~OE~~ CAPPED	
1" Check Valve N. of Truck Bay Manifold	P154		
1" Ball Valve " " "	" " P155	OPEN ENDED	<10 ppm
4" Ball Valve " " "	" " P156		<10 ppm

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 22　#2　#3　#4　#5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI-WICHITA USEPA ID NUMBER: KSD007246846 Date: 10/15/90

Instrument Operator: RUDY VERZUH Calibration Gas ID#: 31995 Daily Calibration Check: 10,000 ppm METHANE

Instrument ID#: 20749 Inspector's Name: RUDY VERZUH Inspector's Signature:

Pipeline/Process ID: K-156/C104/W109 Type of Material Service: Kiln Fuel / Chlorinated Organic Liquids / Non-Chlorinated Organic Liquids

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
3" GATE VALVE AV-3	P-64		<10 ppm
3" GATE VALVE AT T.M.	P-67		<10 ppm
3" HOSE CONNECTION AT T.M.	P-68	CAPPED	
1/2" BALL VALVE AT T.M	P-69		15 ppm
2" GATE VALVE AT D.T.	P-72		<10 ppm
2" CHECK VALVE	P-73 V	Unable to Reach	
3" GATE VALVE AT T.M.	P-80		<10 ppm
1/2" BALL VALVE AT T.M. OE.	P-81, 82	OPEN ENDED	<10 ppm
3" HOSE CONNECTION AT T.M.	P-83	CAPPED	

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HCI -Wichita USEPA ID NUMBER: KSD007246846 Date: 12/15/90

Instrument Operator: RUDY VERZUH Calibration Gas ID#: 31995 Daily Calibration Check: 10,000 ppm METHANE

Instrument ID#: 20749 Inspector's Name: RUDY VERZUH Inspector's Signature: [signature]

Pipeline/Process ID: C101/C102 Type of Material Service: CHLORINATED ORGANIC LIQUIDS/

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
3" GATE VALVE AT	P-20		<10 ppm
1" GATE VALVE AT DRYER TANK	P-21		<10 =
2" GATE VALVE AT DRYER TANK	P-24	Open Ended Line (Needs Cap)	<10 =
1" GATE VALVE " "	P-25		<10 =
2" GATE VALVE " " "	P-26		<10 =
3" HOSE CONNECTION AT D.T.	P-27		<10 =
3" HOSE CONNECTION AT D.T.	P-28		<10 =
1" HOSE CONNECTION AT D.T.	P-29	Open Ended Line	<10 =
1" BALL VALVE AT D.T.	P-33,34		<10 =
1" GATE VALVE AT D.T.	P-30		<10 =
1" EL-BOW -OPEN ENDED AT. D.T.	P-31	Open Ended Line	15 =
1" BALL VALVE -OPEN ENDED	P-32		<10 =
1" GATE VALVE AT D.T.	P-35		<10 "
2" HOSE CONNECTION AT D.T.	P-36	Drain Line - Needs Cap	"

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: WICHITA - HRI USEPA ID NUMBER: KSD007246846 Date: 12/15/96

Instrument Operator: RUDY VERZUH Calibration Gas ID#: 31995 Daily Calibration Check: 10,000 ppm METHANE

Instrument ID#: 20749 Inspector's Name: RUDY VERZUH Inspector's Signature: [signature]

Pipeline/Process ID: C100/K157 Type of Material Service: CHLORINATED ORGANIC LIQUIDS / [illegible]

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
3" GATE VALVE AT TRUCK MANIFOLD	P-9		<10 ppm
3" HOSE CONNECTION AT MANIFOLD	P-10		<10 "
1/2" BALL VALVE (DRAIN ON C-100)	P-11	Needs Cap (Open Ended Line)	<10 "
2" BALL VALVE AT DH MANIFOLD	P-12		14 "
2" HOSE CONNECTION AT DH MAN.	P-13		<10
1/2" BALL VALVE AT DH MAN.	P-14	Drain Line, Needs Cap	<10
3" GATE VALVE AT TANK V-7	P-15		<10
3" GATE VALVE AT AT TRUCK MAN.	P-18		<10
1/2" BALL VALVE AT TRUCK MAN.	P-19	Drain Line, Needs Cap	<10

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: APC-WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/15/90

Instrument Operator: RUDY VERZUH Calibration Gas ID#: 31995 Daily Calibration Check: 10,000 ppm Methane

Instrument ID#: 20749 Inspector's Name: RUDY VERZUH Inspector's Signature: [signature]

Pipeline/Process ID: K154/K155 Type of Material Service: KILN FUEL

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
4" GATE VALVE AT TANK V-5	P-39		<10 ppm
4" GATE VALVE NEAR TANK V-6	P-41		<10 "
1/2" BALL VALVE " " "	P-42		<10 "
4" BALL VALVE " " "	P-44		<10 "
4" HOSE CONNECTION " "	P-50		<10 "
4" BALL VALVE	P-52		<10 ppm
4" GATE VALVE AT V6	P-55		<10 "
1/2" HOSE CONNECTION AT	P-84	OPEN ENDED	
3" GATE VALVE AT V4	P-56		<10 ppm
3" GATE VALVE AT TRUCK MAN.	P-61		<10 ppm
3" HOSE CONNECTION AT T.M.	P-62	CAPPED	
1/2" BALL VALVE AT T.M.	P-63		<10 ppm

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HCI WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/11/90

Instrument Operator: RUDY VERZUH Calibration Gas ID#: 31995 Daily Calibration Check: 10,000 ppm METHANE

Instrument ID#: 20749 Inspector's Name: RUDY VERZUH Inspector's Signature: [signature]

Pipeline/Process ID: N112/K152/C110 Type of Material Service: NON-CHLORINATED ORGANIC LIQUIDS / KILN FUEL / CHLORINATED ORGANIC LIQUIDS

DESCRIPTION	TAG NUMBER	EQUIPMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
2" BALL VALVE AT TRUCK MAN.	P-112		<10 PPM
1/2" BALL VALVE AT TRUCK MAN.	P-113	Open Ended Line	<10 "
2" HOSE CONNECTION AT TRUCK MAN.	P-115		<10 "
4" PLUG VALVE AT DISPERSER	P-116		<10 ppm
2" HOSE CONNECTION AT DH. MAN.	P-158		<10 ppm
1/2" BALL VALVE AT DH MAN	P-160	Open Ended Line	15 ppm
2" BALL VALVE AT DH MAN.	P-159		<10 ppm
2" HOSE CONNECTION AT TRUCK MAN.	P-161	Open Line Needs Cap	<10 ppm
2" BALL VALVE AT TRUCK MAN.	P-162	~~Open Line Needs Cap~~	<10 "
1/2" BALL VALVE AT TRUCK MAN.	P-163	Open Ended Line	<10 "

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

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RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI - WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/17/90

Instrument Operator: RUDY VERZUH Calibration Gas ID#: Lot 3 1995 Daily Calibration Check: 10,000 ppm Methane

Instrument ID#: 20749 Inspector's Name: RUDY VERZUH Inspector's Signature: [signature]

Pipeline/Process ID: C114/C113 Type of Material Service: CHLORINATED ORGANIC LIQUIDS

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
2" Ball Valve At DH MAN	P-98		< 10 ppm
1/2" Ball Valve At DH MAN	P-99	Open Ended Drain Line	< 10 "
2" Hose Connection At DH MAN.	P-100	Capped	< 10 "
2" Ball Valve At Truck MAN.	P-101		< 10 "
1/2 Ball Valve At Truck MAN.	P-102, 103	Open Ended Line	< 10 "
2" Hose Connection At Truck MAN.	P-104	Capped	< 10 "
2" Ball Valve At DH. MAN.	P-105		< 10 ppm
1/2" Ball Valve At DH MAN	P-106	Open Ended Drain Line	< 10 ppm
2" Hose Connection At DH MAN.	P107	Capped	< 10 ppm
2" Ball Valve At Truck MAN	P108		< 10 ppm
1/2" Ball Valve At Truck MAN.	P-109	Open Ended Drain Line	< 10 "
2" Hose Connection At Truck MAN.	P-110	Needs Cap	< 10 "

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HCI - WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/15/90

Instrument Operator: D. Coker Calibration Gas ID#: LOT 31995 Daily Calibration Check: 10,000 ppm METHANE

Instrument ID#: 20859 Inspector's Name: R. [illegible] Inspector's Signature: [illegible]

Pipeline/Process ID: C124/C159/C160/C158 Type of Material Service: CHLORINATED ORGANIC LIQUIDS

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
1" BALL VALVE AT	P-186		12
3/4" BALL VALVE	P-187		20
1" CHECK VALVE	P-188		<10
1" BALL VALVE S-3A	P-196		18
3/4" BALL VALVE AT ~~B~~ 3B	P-197	NEEDS PLUG	10
1" CHECK VALVE AT P-3A	P-198V		<10
3/4" DRAIN LINE AT 1C	P202		<10
3/4" DRAIN LINE AT 1B	P-203		<10
1 1/2" GATE VALVE ~~[illegible]~~ 1C	P-204	NEEDS PLUGGED	<10
1 1/2" GATE VALVE " 1B	P-205	"	<10
1 1/2" GATE VALVE ~~B~~ 1A	P-206	"	<10

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI-WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/15/90

Instrument Operator: D. Cullor Calibration Gas ID#: LOT 31445 Daily Calibration Check: 10,000 ppm METHANE

Instrument ID#: 20859 Inspector's Name: R. P[illegible] Inspector's Signature: [signature]

Pipeline/Process ID: C124/C159/C160/C158 Type of Material Service: CHLORINATED ORGANIC LIQUIDS/

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
1" BALL VALVE AT	P-186		12
3/4" BALL VALVE	P-187		20
1" CHECK VALVE	P-188		<10
1" BALL VALVE 5-3A	P-196		18
3/4" BALL VALVE AT ~~P~~ 3B	P-197	NEEDS PLUG	<10
1" CHECK VALVE AT P-3A	P-198V		<10
3/4" DRAIN LINE AT 1C	P202		<10
3/4" DRAIN LINE AT 1B	P-203		<10
1 1/2" GATE VALVE ~~B~~ 1C	P-204	NEEDS PLUGGED	<10
1 1/2" GATE VALVE " 1B	P-205	"	<10
1 1/2" GATE VALVE ~~B~~ 1A	P-206	"	<10

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI WICHITA   USEPA ID NUMBER: KSD007246468   Date: 12/15/96

Instrument Operator: D. Coler   Calibration Gas ID#: LOT 3144S   Daily Calibration Check: 10 ppm Methane

Instrument ID#: 202557   Inspector's Name: [illegible]   Inspector's Signature: [illegible]

Pipeline/Process ID: K151/N150/N149   Type of Material Service: KILN FUEL/NON CHLORINATED ORGANIC LIQUIDS

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
2" Ball Valve At V3	P-207	Ambient is 12-15 ppm	10
2" Ball Valve At DA Man.	P-208		11
1/2" Ball Valve At DA Man.	P-209	Nozzle plug	17
2" Hose Connection At DA Man	P-210		22
1" Ball Valve W/S ~~[illegible]~~ Disperser	P-211	A	11
1" Drain Line W/F ~~[illegible]~~ Disperser	P-212		40
1" Ball Valve W/F Disperser	P-213		17
1/2" Ball Valve Diesel Tank	P-214		17
1/2" Ball Valve Diesel Tank	P-215	Nozzle plug	12
1/2" Hose Connection Disperser	P-216 V		12
1/2" Hose Connection Disperser	P-217 V		17
2" Gate Valve Diesel Tank	P-218		<10
1 1/2" Ball Valve Diesel Tank	P-219	Nozzle plug	13

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 ____ #2 ____ #3 ____ #4 ____ #5 ____

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: ACI WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/15/90

Instrument Operator: RUDY VERZUH Calibration Gas ID#: Lot 31995 Daily Calibration Check: 10,000ppm METHANE

Instrument ID#: 20749 Inspector's ~~Name~~ Signature: [signature] Inspector's ~~Signature~~ Name: RUDY VERZUH

Pipeline/Process ID: W104/C141/W133 Type of Material Service: AQUEOUS ORGANIC LIQUIDS/CHLORINATED ORGANIC LIQUIDS

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
2" Ball Valve DA MAN.	P-256		12 ppm
1½" Ball Valve DA MAN.	P-257	open ended line.	21 "
2" Hose Connection DA MAN.	P-258		12 "
2" Ball Valve V2	P-259		<10 ppm
2" Ball Valve At DA MAN	P-261		10 "
2" Hose Connection DA MAN	P-262		<10 ppm
2" Hose Connection DA MAN.	P-263		10 ppm
½" Ball Valve DA MAN.	P-264	open ended drain line	10 "
2" Ball Valve DA MAN.	P-265		12 "

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HCI Wichita
USEPA ID NUMBER: KSD007246846
Date: 12/15/10
Instrument Operator: Rudy Verzuh
Calibration Gas ID#: Lot 31995
Daily Calibration Check: [illegible]
Instrument ID#: 20749
Inspector's Name: Rudy Verzuh
Inspector's Signature: [signature]
Pipeline/Process ID: K146/T147
Type of Material Service: Kiln Fuel

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
2" Ball Valve At V4	P-238		<10 ppm
1" Ball Valve At V4	P-247		<10 ppm
1" Open Line At V4	P-248	Open endend line	<10 ppm
2" Ball Valve At DH Man.	P-249		22
½" Ball Valve At DH Man.	P-250	Open endend Line	21
2" Hose Connection At DH Man.	P-251		12
2" Ball Valve V-8	P-239		<10 ppm
2" Ball Valve At DH Man.	P-241		10
2" Hose Connection DH Man.	P-242		<10
½" Ball Valve DH Man.	P-243	Open ended drain line	<10
½" Drain Line DH Man.	P-244	↓ ↓ ↓ ↓	15
2" Hose Connection V-8	P-246	No longer Exist	
2" Open Line V-8	P-245		

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/15/90

Instrument Operator: RUDY VERZULI Calibration Gas ID#: LOT 31995 Daily Calibration Check: 10,010 ppm METHANE

Instrument ID#: 20749 Inspector's Name: RUDY VERZUH Inspector's Signature: [signature]

Pipeline/Process ID: I130/K148/I131/N132 Type of Material Service: KILN FUEL / NON CHLORINATE ORGANIC LIQUIDS

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
1/2" BALL VALVE AT TRUCK MAN.	P-221	Open ended drain line	<10 ppm
3" GATE VALVE AT TRUCK MAN.	P-222		<10 "
3" HOSE CONNECTION AT TRUCK MAN.	P-220		<10 "
2" BALL VALVE AT V-7	P-226		<10 ppm
2" BALL VALVE AT DH MAN.	P-228		11 "
1/2" BALL VALVE AT DH MAN.	P-229	Open ended line	14 "
2" HOSE CONNECTION AT DH MAN.	P-230		11
2" OPEN LINE AT DH MAN.	P-252	Capped	<10 ppm
2" BALL VALVE AT DH MAN.	P-253		<10 "
1/2" BALL VALVE AT DA. MAN.	P-254		10 "
2" HOSE CONNECTION AT DA. MAN	P-255		<10 "

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/15/90

Instrument Operator: D. Cooper Calibration Gas ID#: LOT 31995 Daily Calibration Check: 10,000 ppm [illegible]

Instrument ID#: 20859 Inspector's Name: R. Robertson Inspector's Signature: R Robertson

Pipeline/Process ID: C159/C161/C160/C162/C163 Type of Material Service: CHLORINATED ORGANIC LIQUIDS/

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
3/4" LINE VENT SPARGERS - 1C	P-164	NOT PLUGGED	250
3/4" Ball Valve "	P-165		10
3/4" Ball Valve "	P-166		10
~~1/2" Ball Valve~~ "			
1/2" Ball Valve "	P-167		10
3/4" VENT LINE SPARGERS - 1B	P 168	NOT PLUGGED	350
3/4" Ball Valve " "	P 169		15
3/4" Ball Valve " "	P 170		19
	P		
1/2" Ball Valve " "	P 171		<10
1/2" Ball Valve	P 172		10

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/15/90

Instrument Operator: D Coker Calibration Gas ID#: LOT 31995 Daily Calibration Check: 10,000 ppm Methane

Instrument ID#: 20859 Inspector's Name: R Robertson Inspector's Signature: R Robertson

Pipeline/Process ID: C164/C117/C118/C123 Type of Material Service: Chlorinated Organic Liquids/

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
3/4" Ball Valve At Sparger S-1A	P-173		<10
3/4" Ball Valve At Sparger S-1A	P-174		10
3/4" Vent Line Sparger S-1A	P-175		340
3/4" Drain Line Sparger " "	P-177		14
~~3/4~~ 1/2" Ball Valve At S-2A	P-176		24
1/2" Ball Valve At S-2B	P-181		<10
Open Ended Line S-2B	P-182		<10
1" Check Valve S-2B	P-18~~4~~		14

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 ____ #2 ____ #3 ____ #4 ____ #5 ____

CO

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HCI WICHITA
USEPA ID NUMBER: KSD007246846
Date: 12/15/90

Instrument Operator: RUDY VERZUH
Calibration Gas ID#: Lot 3199T
Daily Calibration Check: 10,000ppm METHANE

Instrument ID#: 20749
Inspector's Name: R. VERZUH
Inspector's Signature: [signature]

Pipeline/Process ID: K134/ ~~[illegible]~~ I137/ K138/ K140
Type of Material Service: Kiln Fuel

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
2" Ball Valve V6	P 275		<10 ppm
2" Hose Connection V6	P-276		<10 ppm
1" Ball Valve V8	P-279		<10 ppm
1" Ball Valve V8	P-280		" "
1/4" Open Line V8	P-281	Open ended line	10 "
1" Ball Valve V7	P282		<10 ppm
1" Ball Valve V7	P-283		<10 "
1/4" Open Line V7	P-284	Open ended line	<10 "
1" Ball Valve V4	P-285		40 ppm
1" Ball Valve V4	P-286		200 ppm
1/4" Open Line V4	P-287	Needs to be pluged unless it's being used as a vent line	>10,000 ppm

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/15/90

Instrument Operator: R. VERZUH Calibration Gas ID#: Lot 31995 Daily Calibration Check: 10,000 ppm METHANE

Instrument ID#: 20749 Inspector's Name: RUDY VERZUH Inspector's Signature: [signature]

Pipeline/Process ID: K139/K136/C124/K157 Type of Material Service: KILN FUEL VAPORS/

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
1" BALL VALVE V3	P-~~289~~ 288		10 ppm
1" BALL VALVE V3	P-~~290~~ 289		10 ppm
1/4" DRAIN OPEN LINE V3	P-290		<10 ppm
1" BALL VALVE V1	P-291		0 ppm
1" BALL VALVE V1	P-292		0 "
1/4 DRAIN OPEN LINE V1	P-293		<10 ppm
1" BALL VALVE	P-307V	Unable to Reach	
1/2 ELBOW OPEN LINE AT T.M.	P-308	Needs Cap	<10 ppm

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/15/90

Instrument Operator: R. VERZUH Calibration Gas ID#: Lot 31995 Daily Calibration Check: 10,000ppm Methane

Instrument ID#: 20749 Inspector's Name: RUDY VERZUH Inspector's Signature: [signature]

Pipeline/Process ID: W142/T143/W133/ C144/K135 Type of Material Service: Aqueous Organic Liquids/

Q

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
3" Plug Valve At V-1	P-266	Not found	
3" Ball Valve At V-1	P-267		<10 ppm
3" Plug Valve At V8	P-268		<10 ppm
2" Ball Valve At At V-1.	P-270		<10 ppm
2" Ball Valve At V2	P-271		<10 ppm
2" Hose Connection At V2	P-272		<10 "
2" Ball Valve At V5	P-273		<10 ppm
2" Hose Connection At V5	P-274		<10 "

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI WICHITA   USEPA ID NUMBER: KSD007246846   Date: 12/15/90

Instrument Operator: D. Goker   Calibration Gas ID#: Lot 31445   Daily Calibration Check: 4000ppm Methane

Instrument ID#: 20859   Inspector's Name: R. Robertson   Inspector's Signature: R. Robertson

Pipeline/Process ID: Pump And Filters   Type of Material Service: Various

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
Pump 2A (Submersible)	M-6	N.A.	-------
Pump 2B S-3B	M-7		<10
Pump 3A S-4A	M-8		<10
Pump 3B S-3A	M-9		12
Pump P1 At Dry Conden.			
Tank V-18	M-1		<5
Manifold Transfer Pump P-4	M-23		11
Truck Manifold			
Diesel Injection Pump P-11	M-25		20
At Diesel Tank			

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI WICHITA USEPA ID NUMBER: KSD007246846 Date: 12/15/90

Instrument Operator: D. COKER Calibration Gas ID#: LOT 31995 Daily Calibration Check: 10,000ppm METHANE

Instrument ID#: 20859 Inspector's Name: R. ROBERTSON Inspector's Signature: R. Robertson

Pipeline/Process ID: PUMPS AND FILTERS Type of Material Service: VARIOUS

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
GURATOR SCREW PUMP P-5	M-26		50
IN DISPERSER			
GRINDING PUMP FILTER F-1	M-27		15
DIAPHRAM PUMP P-6	M-28	INCLUDES CONNECTIONS	15
DIAPHRAM PUMP P-7	M-29		40
DIAPHRAM PUMP P-8	M-30		40
DIAPHRAM PUMP P-9	M-39		18
DIAPHRAM PUMP P-10	M-40	OUT OF SERVICE	

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

SITE/FACILITY ________________

NOTICE !

THIS IS A 5 AND 15 DAY TIME LIMIT REPAIR ORDER

Initial Date	Mandatory 5–Day Action	Mandatory 15–Day Action
DATE: 12/17/90	12/22/90	01/01/91
VALVES: (40 CFR 265.1057)	Tightening or replacing bonnet bolts, tightenting packing gland nuts, or injecting lubricant into the lubricated packing.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PUMPS: (40 CFR 265.1052)	Tightening or replacing casing bolts, tightenting packing gland bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm or taken out of service.
CONNECTIONS: (40 CFR 265.1058)	Tightening flange bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PRESSURE RELIEF DEVICES: (40 CFR 265.1054)		Leak source must be repaired such that it passes next monitoring event emission level of 500 ppm.
OPEN ENDED LINES: (40 CFR 265.1058)	Replacement of plug, blind flange, or closure of second block valve with drain.	

ITEM	DATE PERFORMED 5–DAY	15–DAY	INITIALS OF PERSON PERFORMING REPAIR
1" BALL VALVE AT TRUCK BAY -LINE K153 NEEDS	12/20/90		AR
PLUG. (P-152)	12/20/90		AR
1" BALL VALVE AT TRUCK BAY-LINE K153 NEEDS	12/20/90		AR
PLUG. (P-155)	12/20/90		AR
OPEN ENDED 1/2" BALL VALVE (P-81) AT TRUCK MANIFOLD NEEDS PLUG.	12/20/90		AR
2" GATE VALVE AT (P-34) DRYER TANK NEEDS PLUG.	12/20/90		AR
1" HOSE CONNECTION AT (P-34) DRYER TANK NEEDS PLUG.	12/20/90		AR
1" ELBOW OPEN ENDED (P-31) NEEDS PLUG.	12/20/90		AR
1" HOSE CONNECTION (P-29) NEEDS PLUG AT DRYER TANK.	12/20/90		AR
2" HOSE CONNECTION NEEDS PLUG AT DRYER TANK.	12/20/90		AR
1/2" BALL VALVE (P-17) NEEDS PLUG.	12/20/90		AR

CC: Plant/Operations Manager, Director of Operations, Maintanence Supervisor, Environmental Compliance Dept., 40 CFR 265.1035 File

NOTICE !

THIS IS A 5 AND 15 DAY TIME LIMIT REPAIR ORDER

Initial Date	Mandatory 5–Day Action	Mandatory 15–Day Action
DATE: 12/17/90	12/22/90	01/01/91
VALVES: (40 CFR 265.1057)	Tightening or replacing bonnet bolts, tightenting packing gland nuts, or injecting lubricant into the lubricated packing.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PUMPS: (40 CFR 265.1052)	Tightening or replacing casing bolts, tightenting packing gland bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm or taken out of service.
CONNECTIONS: (40 CFR 265.1058)	Tightening flange bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PRESSURE RELIEF DEVICES: (40 CFR 265.1054)		Leak source must be repaired such that it passes next monitoring event emission level of 500 ppm.
OPEN ENDED LINES: (40 CFR 265.1058)	Replacement of plug, blind flange, or closure of second block valve with drain.	

ITEM	DATE PERFORMED		INITIALS OF PERSON PERFORMING REPAIR
	5–DAY	15–DAY	
1/2" BALL VALVE NEEDS PLUG AT DRUM HAND. MANIFOLD (P-14).	12/20/90	-	RR
1/2" BALL VALVE NEEDS PLUG AT TRUCK MANIFOLD (P-19).	12/20/90		RR
1/2" HOSE CONNECTION AT V6 NEEDS PLUG (P-84).	12/20/90		RR
1/2" BALL VALVE AT TRUCK MANIFOLD NEEDS PLUG (P-113)	12/20/90		RR
1/2" BALL VALVE AT DRUM HAND. MANIFOLD NEEDS PLUG (P-160)	12/20/90		RR
2" HOSE CONNECTION AT TRUCK MANIFOLD NEEDS PLUG (P-161)	12/20/90		RR
1/2" BALL VALVE AT TRUCK MANIFOLD NEEDS PLUG (P-163)	12/20/90		RR
1/2" BALL VALVE AT DRUM HANDLING P-99, P-106,	12/20/90		RR
P-209, P-237, P-264, P-250, P-243 P-244	12/20/90		RR
~~P-221~~ & P-229, NEED PLUGS.	12/20/90		RR

CC: Plant/Operations Manager, Director of Operations, Maintanence Supervisor, Environmental Compliance Dept., 40 CFR 265.1035 File

NOTICE !

THIS IS A 5 AND 15 DAY TIME LIMIT REPAIR ORDER

Initial Date	Mandatory 5–Day Action	Mandatory 15–Day Action
DATE: 12/17/90	12/22/90	01/01/91
VALVES: (40 CFR 265.1057)	Tightening or replacing bonnet bolts, tightenting packing gland nuts, or injecting lubricant into the lubricated packing.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PUMPS: (40 CFR 265.1052)	Tightening or replacing casing bolts, tightenting packing gland bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm or taken out of service.
CONNECTIONS: (40 CFR 265.1058)	Tightening flange bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PRESSURE RELIEF DEVICES: (40 CFR 265.1054)		Leak source must be repaired such that it passes next monitoring event emission level of 500 ppm.
OPEN ENDED LINES: (40 CFR 265.1058)	Replacement of plug, blind flange, or closure of second block valve with drain.	

ITEM	DATE PERFORMED 5–DAY	DATE PERFORMED 15–DAY	INITIALS OF PERSON PERFORMING REPAIR
½" BALL VALVES AT TANK MANIFOLD P-102, P-109	12/20/90	RR	
P-110, P-221, NEED PLUGS.	12/20/90	RR	
¾" BALL VALVE AT P3B (P-197) NEEDS PLUG.	12/20/90	RR	
1½" GATE VALVE AT 1C, 1B, (P-204) NEEDS PLUG (P-206, P-26).	12/20/90	12-30-90	RR & D.L.
1½" PLUG VALVE AT DIESEL TANK NEEDS PLUG (P-215).	12/20/90	RR	
1½" BALL VALVE AT DIESEL TANK NEEDS PLUG (P-219).	12/20/90	RR	
1" OPEN LINE AT TANK U4 NEEDS PLUG (P-249).	12/20/90	RR	
¾" VENT LINE ON SPARGER 1C NEEDS PLUG (P-164).	12/20/90	RR	
¾" VENT LINE ON SPARGER 1B NEEDS PLUG (P-168).	12/20/90	RR	

CC: Plant/Operations Manager, Director of Operations, Maintanence Supervisor, Environmental Compliance Dept., 40 CFR 265.1035 File

NOTICE !

THIS IS A 5 AND 15 DAY TIME LIMIT REPAIR ORDER

Initial Date	Mandatory 5–Day Action	Mandatory 15–Day Action
DATE: 12/17/90	12/22/90	01/01/91
VALVES: (40 CFR 265.1057)	Tightening or replacing bonnet bolts, tightenting packing gland nuts, or injecting lubricant into the lubricated packing.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PUMPS: (40 CFR 265.1052)	Tightening or replacing casing bolts, tightenting packing gland bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm or taken out of service.
CONNECTIONS: (40 CFR 265.1058)	Tightening flange bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PRESSURE RELIEF DEVICES: (40 CFR 265.1054)		Leak source must be repaired such that it passes next monitoring event emission level of 500 ppm.
OPEN ENDED LINES: (40 CFR 265.1058)	Replacement of plug, blind flange, or closure of second block valve with drain.	

ITEM	DATE PERFORMED 5–DAY	DATE PERFORMED 15–DAY	INITIALS OF PERSON PERFORMING REPAIR
1/4" VENT LINE AT V8 (P-281) NEEDS PLUG.	12/20/90		[illegible]
1/4" VENT LINE AT V7 (P-284) NEEDS PLUG.	12/20/90		[illegible]
1/4" VENT LINE AT V4 (P-287) NEEDS PLUG.	12/20/90		[illegible]
1/2" ELBOW W/ OPEN LINE (P-308) NEEDS PLUG.	12/20/90		[illegible]

CC: Plant/Operations Manager, Director of Operations, Maintanence Supervisor, Environmental Compliance Dept., 40 CFR 265.1035 File

CERTIFIED CALIBRATION

EPA METHOD 21

COMPANY USPCI

INSTRUMENT S/N 41063

MODEL OVA-128

CALIBRATION GASES: (2)

100 PPM CH_4 in AIR

1000

	(3) Zero Reading (PPM)	Zero Drift (PPM)	Cal Reading (PPM)	Cal Drift (PPM)	Response Time (SEC)
1.	0.1	.1	100	5	5
2.	0.1	.1	1000	10	4
3.	0.1	.1	1000	30	4

(1)Mean Value: Zero Drift: .13 ppm Cal Drift: .31 ppm

(5)Response Time: 4 seconds

(4)Calibration Precision = $\frac{\text{Mean Cal Drift}}{\text{Cal Gas Concentration}}$ X 100 = 1.4 %

(1) Absolute Value
(2) Calibration Gas Concentration
(3) Zero Reading Must Be Less Than 10ppm
(4) Calibration Precision must be ≤ 10% of Calibration Gas Concentration
(5) Response Time must be ≤ 30 seconds

Calibrated by R Roberts

Date 6-25-91

RCRA VOC EQUIPMENT LDAR PROGRAM – FI[illegible] LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI-Wichita USEPA ID NUMBER: KSD007246846 Date: 6-25-91

Instrument Operator: R. Robertson Calibration Gas ID#: 100PPM Methane Daily Calibration Check: R

Instrument ID#: 41063 Inspector's Name: R. Vazquez Inspector's Signature: See Attached

Pipeline/Process ID: Below Type of Material Service: Aqueous & Organic Liquids

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
Spare Cooling Water Pump P-2B	M-7	Out of Service	<10
Spare Solvent Pump P-3A	M-8	Out of Service	<10
Spare Solvent Pump P-3B	M-9	Out of Service	<10
Condensate Separator Pump P-1	M-1		<10
Monitor Transfer Pump P-1	M-23		10
Diesel Injection Pump P-11	M-25		10
Grinding Pump P-5	M-26		<10

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 #2 #3 #4 #5

CERTIFIED CALIBRATION

EPA METHOD 21

COMPANY USPCI

INSTRUMENT S/N 41063

MODEL OVA 128

CALIBRATION GASES: (2)

10,000PPM CH_4 in Air

100 PPM CH_4 in Air

	(3) Zero Reading (PPM)	Zero Drift (PPM)	Cal Reading (PPM)	Cal Drift (PPM)	Response Time (SEC)
1.	0.0	.1	95	2	3
2.	0.0	0	10,000	100	3
3.	0.0	.2	9960	60	4

(1)Mean Value: Zero Drift: .1 ppm Cal Drift: 54 ppm

(5)Response Time: 3 seconds

(4)Calibration Precision = $\frac{\text{Mean Cal Drift}}{\text{Cal Gas Concentration}}$ X 100 = .54%

(1) Absolute Value
(2) Calibration Gas Concentration
(3) Zero Reading Must Be Less Than 10ppm
(4) Calibration Precision must be ≤ 10% of Calibration Gas Concentration
(5) Response Time must be ≤ 30 seconds

Calibrated by R Robert

Date 9-30-91

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI-Wichita USEPA ID NUMBER: KS000724C84C Date: 9-30-91

Instrument Operator: R. [illegible] Calibration Gas ID#: 100 PPM Methane Daily Calibration Check: [illegible]

Instrument ID#: 41063 Inspector's Name: R. [illegible] Inspector's Signature: See Attached

Pipeline/Process ID: [illegible] Type of Material Service: Aqueous & Organic Liquids

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
[illegible] Water Pump P-2b	M-7	Out of Service	<10
Separator Solvent Pump P-3a	M-8		<10
Separator Solvent Pump P-3b	M-9		<10
Condensate Separator Pump P-1	M-1		10
Manifold Transfer Pump P-4	M-23		10
Diesel [illegible] Pump P-11	M-25		15
Grinder Pump P-5	M-26		<10

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 5 #2 10 #3 <10 #4 #5

RCRA VOC EQUIPMENT LDAR PROGRAM – FIELD LEAK MONITORING RECORD (40 CFR 265 SUBPART BB)

FACILITY: HRI-WICHITA USEPA ID NUMBER: KSD007246846 Date: 1-21-91

Instrument Operator: R. Robertson Calibration Gas ID#: 100PPM Methane Daily Calibration Check: RR

Instrument ID#: 41063 Inspector's Name: R. Verzwit Inspector's Signature: See Attached

Pipeline/Process ID: Below Type of Material Service: AQUEOUS AND ORGANIC LIQUIDS;

DESCRIPTION	TAG NUMBER	EQUIPEMENT/CONNECTION CONDITION DESCRIPTION	OVA READING
SPARGER WATER PUMP P-2B	M-7		0
SPARGER SOLVENT PUMP P-3A	M-8		0
SPARGER SOLVENT PUMP P-3B	M-9		0
CONDENSATE SEPERATOR PUMP P-1	M-1		<10
MANIFOLD TRANSFER PUMP P-4	M-23		0
DIESEL INJECTION PUMP P-11	M-25		<10
GRINDING PUMP P-5	M-26		10

Comments (Weather, Dilutor Cal.)

Background Measurements: #1 Ø #2 <2 #3 <2 #4 Ø #5

CERTIFIED CALIBRATION

EPA METHOD 21

COMPANY USPCL

INSTRUMENT S/N 41063

MODEL OVA-128

CALIBRATION GASES: (2)

10,000 ppm CH_4 in Air

Zero Air

	(3) Zero Reading (PPM)	Zero Drift (PPM)	Cal Reading (PPM)	Cal Drift (PPM)	Response Time (SEC)
1.	0.1	.1	9800	200	5
2.	0.2	.2	10,000	0	4
3.	0.1	.1	10,000	0	5

(1)Mean Value: Zero Drift: .13 ppm Cal Drift: 67 ppm

(5)Response Time: 5 seconds

(4)Calibration Precision = $\dfrac{\text{Mean Cal Drift} \quad 67}{10{,}000 \quad \text{Cal Gas Concentration}}$ X 100 = 0.67 %

(1) Absolute Value
(2) Calibration Gas Concentration
(3) Zero Reading Must Be Less Than 10ppm
(4) Calibration Precision must be ≤ 10% of Calibration Gas Concentration
(5) Response Time must be ≤ 30 seconds

Calibrated by Rudy Verzuli

Date 1/17/91

SITE/Facility ______

NOTICE !

THIS IS A 5 AND 15 DAY TIME LIMIT REPAIR ORDER

	Initial Date	Mandatory 5–Day Action	Mandatory 15–Day Action
	DATE: 12/17/90	12/22/90	01/01/91
VALVES: (40 CFR 265.1057)		Tightening or replacing bonnet bolts, tightenting packing gland nuts, or injecting lubricant into the lubricated packing.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PUMPS: (40 CFR 265.1052)		Tightening or replacing casing bolts, tightenting packing gland bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm or taken out of service.
CONNECTIONS: (40 CFR 265.1058)		Tightening flange bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PRESSURE RELIEF DEVICES: (40 CFR 265.1054)			Leak source must be repaired such that it passes next monitoring event emission level of 500 ppm.
OPEN ENDED LINES: (40 CFR 265.1058)		Replacement of plug, blind flange, or closure of second block valve with drain.	

ITEM	DATE PERFORMED		INITIALS OF PERSON PERFORMING REPAIR
	5–DAY	15–DAY	
1" BALL VALVE AT TRUCK DRAIN-LINE K153 NEEDS	12/20/90		RR
PLUG. (P-152)	12/20/90		RR
1" BALL VALVE AT TRUCK DRAIN-LINE K153 NEEDS	12/20/90		RR
PLUG. (P-155)	12/20/90		RR
OPEN ENDED 1/2" BALL VALVE (P-21) AT TRUCK MANIFOLD NEEDS PLUG.	12/20/90		RR
2" GATE VALVE AT (P-34) DRYER TANK NEEDS PLUG.	12/20/90		RR
1" HOSE CONNECTION AT (P-24) DRYER TANK NEEDS PLUG.	12/20/90		RR
1" ELBOW OPEN ENDED (P-31) NEEDS PLUG.	12/20/90		RR
1" HOSE CONNECTION (P-29) NEEDS PLUG AT DRYER TANK.	12/20/90		RR
2" HOSE CONNECTION NEEDS PLUG AT DRYER TANK.	12/20/90		RR
1/2" BALL VALVE (P-17) NEEDS PLUG.	12/20/90		RR

CC: Plant/Operations Manager, Director of Operations, Maintanence Supervisor, Environmental Compliance Dept., 40 CFR 265.1035 File

NOTICE !

THIS IS A 5 AND 15 DAY TIME LIMIT REPAIR ORDER

	Initial Date	Mandatory 5–Day Action	Mandatory 15–Day Action
	DATE: 12/17/90	12/22/90	01/01/91
VALVES: (40 CFR 265.1057)		Tightening or replacing bonnet bolts, tightenting packing gland nuts, or injecting lubricant into the lubricated packing.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PUMPS: (40 CFR 265.1052)		Tightening or replacing casing bolts, tightenting packing gland bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm or taken out of service.
CONNECTIONS: (40 CFR 265.1058)		Tightening flange bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PRESSURE RELIEF DEVICES: (40 CFR 265.1054)			Leak source must be repaired such that it passes next monitoring event emission level of 500 ppm.
OPEN ENDED LINES: (40 CFR 265.1058)		Replacement of plug, blind flange, or closure of second block valve with drain.	

ITEM	DATE PERFORMED 5–DAY	DATE PERFORMED 15–DAY	INITIALS OF PERSON PERFORMING REPAIR
[illegible]" BALL VALVE NEEDS PLUG AT DRUM HAND. MANIFOLD (P-14).	12/20/90		RR
1/2" BALL VALVE NEEDS PLUG AT TRUCK MANIFOLD (P-19).	12/20/90		RR
1/2" HOSE CONNECTION AT U6 NEEDS PLUG (P-84).	12/20/90		RR
1/2" BALL VALVE AT TRUCK MANIFOLD NEEDS PLUG (P-113)	12/20/90		RR
1/2" BALL VALVE AT DRUM HAND. MANIFOLD NEEDS PLUG (P-1[illegible])	12/20/90		RR
2" HOSE CONNECTION AT TRUCK MANIFOLD NEEDS PLUG (P-161)	12/20/90		RR
1/2" BALL VALVE AT TRUCK MANIFOLD NEEDS PLUG (P-163)	12/20/90		RR
1/2" BALL VALVE AT DRUM HANDLING P-99, P-106,	12/20/90		RR
P-204, P-257, P-264, P-250, P-243, P-244,	12/20/90		RR
~~P-[illegible]~~ & P-229, NEED PLUGS.	12/20/90		RR

CC: Plant/Operations Manager, Director of Operations, Maintanence Supervisor, Environmental Compliance Dept., 40 CFR 265.1035 File

NOTICE !

THIS IS A 5 AND 15 DAY TIME LIMIT REPAIR ORDER

Initial Date	Mandatory 5–Day Action	Mandatory 15–Day Action
DATE: 12/17/90	12/22/90	01/01/91
VALVES: (40 CFR 265.1057)	Tightening or replacing bonnet bolts, tightenting packing gland nuts, or injecting lubricant into the lubricated packing.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
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CONNECTIONS: (40 CFR 265.1058)	Tightening flange bolts.	Leak source must be repaired such that it passes next monitoring event emission level of 10,000 ppm.
PRESSURE RELIEF DEVICES: (40 CFR 265.1054)		Leak source must be repaired such that it passes next monitoring event emission level of 500 ppm.
OPEN ENDED LINES: (40 CFR 265.1058)	Replacement of plug, blind flange, or closure of second block valve with drain.	

ITEM	DATE PERFORMED 5–DAY	DATE PERFORMED 15–DAY	INITIALS OF PERSON PERFORMING REPAIR
½" BALL VALVES AT TRUCK MANIFOLD P-102, P-109,	12/20/90	RR	
P-110, P-221, NEED PLUGS.	12/20/90	RR	
¾" BALL VALVE AT P3B (P-197) NEEDS PLUG.	12/20/90	RR	
1½" GATE VALVE AT 1C, 1B, (P-204) NEEDS PLUG (P-206, P-206).	1/4 12/20/90	12-30-90	RR & D.L.
½" PLUG VALVE AT DIESEL TANK NEEDS PLUG (P-215).	12/20/90	RR	
1½" BALL VALVE AT DIESEL TANK NEEDS PLUG (P-219).	12/20/90	RR	
1" OPEN LINE AT TANK U4 NEEDS PLUG (P-249).	12/20/90	RR	
¾" VENT LINE ON SPARGER 1C NEEDS PLUG. (P-164).	12/20/90	RR	
¾" VENT LINE ON SPARGER 1B NEEDS PLUG (P-168).	12/20/90	RR	

CC: Plant/Operations Manager, Director of Operations, Maintanence Supervisor, Environmental Compliance Dept., 40 CFR 265.1035 File

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Clean Harbors Kansas, LLC
RCRA Permit Application
Parts A & B

Volume 3 of 3

Submitted To:
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United States Environmental Protection Agency – Region VII

February 18, 1992
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Appendix Y-1, Site Drawings
Appendix Y-2, Building Drawings
Appendix Y-3, Unit Drawings

List of Acronyms

Clean Harbors Kansas, LLC (SKW)

Y-1 Introduction:

This section, Referenced Drawings, of the Clean Harbors Kansas, LLC, RCRA permit application is provided to facilitate location of information regarding site layout, equipment, and processing unit information. Reduced versions of these drawings are included as figures within the text or appendices of the application where applicable. Lists of referenced drawings and original size drawings are presented in Appendix Y-1, Site Drawings; Appendix Y-2, Building Drawings; and Appendix Y-3, Unit Drawings.

Appendix Y-1. Site Drawings

Drawing Number	Drawing Title	Corresponding Figure Number
Drawing 50-01-01-001	Site Location Map	B.1
Drawing 50-01-11-001	Facility Map	B.2
Drawing 50-01-01-002	Facility Layout	B.3 G.1
Drawing 50-01-10-001	Hazardous Waste Management Areas	B.4 D.1 E.1
Drawing 50-00-01-001	Annual Surface Wind Rose	B.5
Drawing 50-01-10-002	Material Containment Areas	D.2 J.1
Drawing 50-01-03-002	Emergency Equipment/Evacuation Routes	H.1
Drawing 50-55-10-002	Tank Locations	E.2 J.2
Drawing 50-01-10-003	Solid Waste Management Unit - Area West of Building B	L.1
Drawing 50-57-10-001	Miscellaneous Unit Locations	J.3 M.1

Appendix Y-2. Building Drawings

Drawing Number	Drawing Title	Corresponding Figure/Appendix Number
Drawing 50-14-10-001	Building B	Figure D.7 in Appendix D-A
Drawing 50-15-10-001	Building C	Figure D.5 in Appendix D-A
Drawing 50-15-10-002	Drum Dock	Figure D.6 in Appendix D-A
Drawing 50-16-10-001	Building D	Figure D.3 in Appendix D-A
Drawing 50-17-10-001	Building I	Figure D.8 in Appendix D-A
Drawing 50-18-10-001	Building J	Figure D.9 in Appendix D-A
Drawing 50-55-10-001	Processing Area	Figure D.4 in Appendix D-A

Appendix Y-3. Unit Drawings

Drawing Number	Drawing Title	Corresponding Figure/Appendix Number
Drawing 665300-4-W404A (FD)	P&ID New Process/Condensate Separator[1]	Figure M.2 in Appendix M-A
Drawing (As built)	Shredder/Granulator[1]	Figure M.3 in Appendix M-A
Drawing 50-57-03-001	Shredder/Granulator[1]	Figure M.4 in Appendix M-A
Drawing D-35-52-800	55 Gallon Drum Scraper	Figure M.5 in Appendix M-A
Drawing D-43-10-6-100 (HRI, Inc.)	Motor Location and Specifications	Figure M.6 in Appendix M-A
Drawing 2106-P (Littleford)	Model-FKM-3000-D-Mixer[1]	Figure M.7 in Appendix M-A
Drawing PD 12/3/91	1129 Gallon Dispersing Tank	Figure M.8 in Appendix M-A
Drawing DL34055 (FCF-Bowers)	40/50/60 VSM 18 Disperser	Figure M.9 in Appendix M-A
Drawing PD 1/25/91	Barrel Dump Assembly	Figure M.10 in Appendix M-A
Drawing 665300-4-W404F (FD)	P&ID Process Areas	Figure M.11 in Appendix M-A
Drawing D990043 (BRI, Inc.)	Triple Rinse, HRI	Figure M.12 in Appendix M-A

[1] These units have been closed.